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THE BRICKBUILDER.

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FIRE-PROOF CONSTRUCTION.

ANY one who has attentively studied the history and development of fire-proof construction in this country cannot have failed to appreciate the motive forces which have not merely evolved the special forms in general use, but have really created the science. Reasoning without reference to the facts one might readily assume that the two most potent factors in developing a fire-proof construction would be on the one hand, the interests of the great fire insurance companies who are so vitally affected by loss and damage from fire; and, on the other hand, the municipalities who make laws prescribing what construction shall be used in certain cases. As a matter of fact, the insurance companies have borne a very slight part in the development, their function being practically confined to the very important one of placing a premium upon good construction. We would wish that the premium were higher, and that the insurance companies might see fit to more earnestly encourage the best construction, by making more difference between the rates upon the fire-trap and the fire-proof building. But even the little difference that they have made in the rates of

the two kinds of buildings has certainly helped a great deal to encourage the right sort of construction. It surely is not due to any very great extent to the building laws that we, to-day, are able to construct a building which will resist almost any kind of conflagration.

BUILDING laws cannot at most do more than formulate what is considered good practice, and practice must come first. It is safe to say that nearly every advance of a radical nature which has been made in building construction during the past fifteen or twenty years, if not originally designed in conflict with existing laws, were certainly not regulated by them; and those cities have indeed been fortunate which possessed building regulations upon the subject which were even fairly intelligent and in line with the scientific understanding of the educated constructor. We mean by this that fire-proof construction as a specialized science has developed as a direct result of tangible appreciated need, and its growth has been regulated and retained with only a very slight stimulus from either insurance or legal inspection. It is a matter of common business sense:

IN a large city a fire-proof building is, in the long run, the best investment as compared with any structure which is exposed to damage by fire. Even in the smaller towns it has come to be recognized that a structure of any more than moderate height or extent is a safer investment if constructed in accordance with the fire-proof principles. There has been a very good illustration of this fact afforded by an office building at Atlantic City, the permits for which were issued by the city granting the right, in accordance with existing ordinances, to put up a ten-story structure of what is called the second class, namely, with brick external walls, wooden floors, and wooden internal construction. After this permit was granted a new ordinance was introduced and passed, requiring buildings of that height to be fire-proof. The holders of the permit had a perfect right to carry out the original plan, but careful consideration of the whole matter apparently convinced them that the extra expense of twenty-five thousand dollars needed to make the building thoroughly fire-proof was money well invested, and that their building so constructed would be safer, would rent better, and the insurance rates not only for the building, but for those near-by, would be less, than if only the first cost was considered, and second-class construction adapted. This is only one of many instances which show the economic value of fire-proof construction, and which illustrates the manner in which fire-proofing has been developed from commercial necessities rather than as a result of academic theories.

Brickbuilding in Modern France. II.

BY JEAN SCHOPFER, PARIS.

ONE of the most pleasing buildings of brick of these recent years is the Boucicaut Hospital (Fig. 1), interesting for so many reasons. The architect is Mr. Legros, and the several buildings, which cover a very considerable amount of land, show a superior knowledge on his part of the requirements of a large hospital and the exigencies of modern science.

In this structure brick alone has been employed, and intelligently so. We give two views of it. The one facing the private garden shows the little pavilion where wealthy people, who prefer going to a hospital, are treated. The façades are gay with their simple brick designs and a few notes of white stone. The roofs are uniformly covered with red tiles of excellent effect.

The second view (Fig. 2) shows the minor buildings of the same hospital. Most of them have, as can be seen in the one at the right, an elevated ground floor and one vaulted floor above it. The form of the great discharging

roof reminds one of the buildings of the time of Louis XIII., and the houses of the old Place Royale, now the Place des Vauges. This monument shows us no new formula, but is a good example of the style to which it

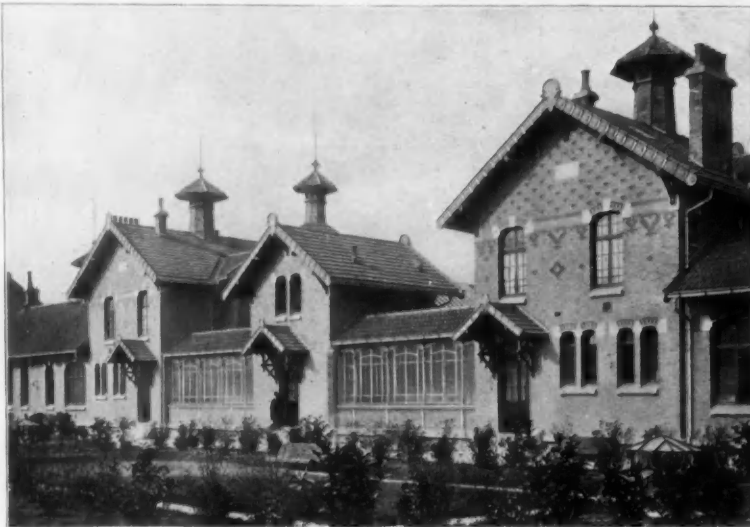


FIG. 1. BOUCICAUT HOSPITAL, PARIS.



FIG. 2. BOUCICAUT HOSPITAL, PARIS.

arch makes visible from the exterior the ingenious form of these hospital wards.

Brick also was chosen for a well-known building, the Pasteur Institute (Fig. 3). Here all the qualities of brick are by no means developed. The architect was satisfied with an unoriginal style, with the angles and frames of white stone in a background of brick. It is of sombre elegance, but of little interest for our special study.

Brick and stone are again the elements of the Agronomical Institute (Fig. 4). Here are the window frames and the angles of white stone, which we shall often have occasion to see. However, a certain distinction of the whole, a certain elegance of proportion, cannot escape our observation. The form of the

is circumscribed, and is one of the most serious works of the time, giving proof of long study and reflection on the part of its designer.

The Chaptal College (Fig. 5) is much more characteristic. It is by one of the most notorious architects of our time, who has always shown a fondness for the use of brick, of which, in fact, he has made a specialty. Mr. Train, when he designed Chaptal twenty years ago, did not intend his façade to be entirely of brick. He made but a discreet use of it, although an interesting one, as we may see by the view reproduced here. Brick is only introduced in the base of the first floor, between the bays of the windows which are pierced throughout the length of the two stories, for the window arches, and, finally, between the corbels of the cornice. It plays here a clearly polychrome part, which is

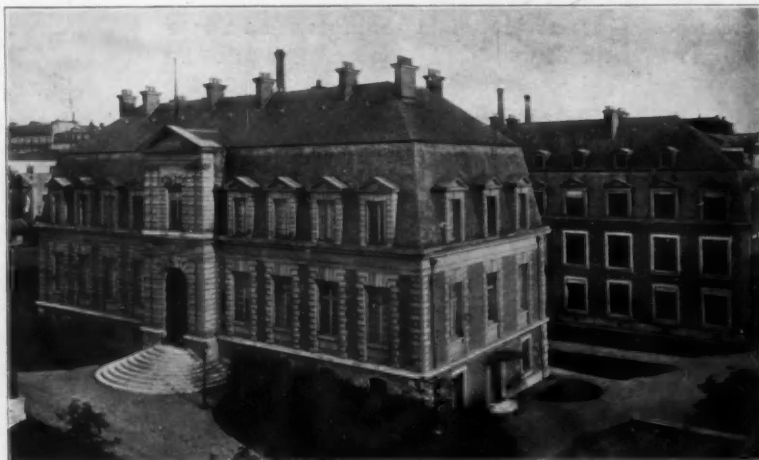


FIG. 3. PASTEUR INSTITUTE, PARIS.



FIG. 4. AGRONOMICAL INSTITUTE, PARIS.

moreover accentuated by enameled terra-cotta. It is shown, too, under a new aspect, and I would point out, before we pass on, the really original way in which it appears under the cornice. It is placed in the wall so as to be seen at an angle, and the architect draws from this new and characteristic arrangement an excellent and unexpected decorative effect.

We shall have other works of Mr. Train to examine.

The building which demands our attention now is by Mr. Magne, professor at the Ecole des Beaux-Arts, one of the architects who has made the best employment of brick. It is the Greek pavilion (Fig. 12) of the Exhibition of 1900, but is destined to survive it, for the pavilion will be pulled down in Paris to be erected again in Greece, where it will serve as a little museum. The system of construction is simple. The supports of the iron cupola



FIG. 6. PRIVATE HOTEL, PARIS.

are visible from the interior and rest on iron columns which rise from the ground. On the exterior we see big squares of brick of a delicate rose tint, separated by layers of horizontal brick of a very dim blue-green. The frames of the doors and windows are of the same combination of colors. A frieze of enameled terra-cotta decorates the upper portions of the walls. In the illustration (Fig. 12) we can see in what manner the bricks are laid. At one side is a piazza, and the whole is covered with big red tiles. The ensemble of the pavilion is satisfactory in line, the choice of materials excellent, and the polychromy in charming taste. We were not spoiled by the Exhibition of 1900, and the little Greek pavilion had but few rivals.

Now we must enter the vast field of private constructions. Beautiful works do not abound here, although



FIG. 5. CHAPTAL COLLEGE, PARIS.



FIG. 7. PRIVATE HOTEL, PARIS.

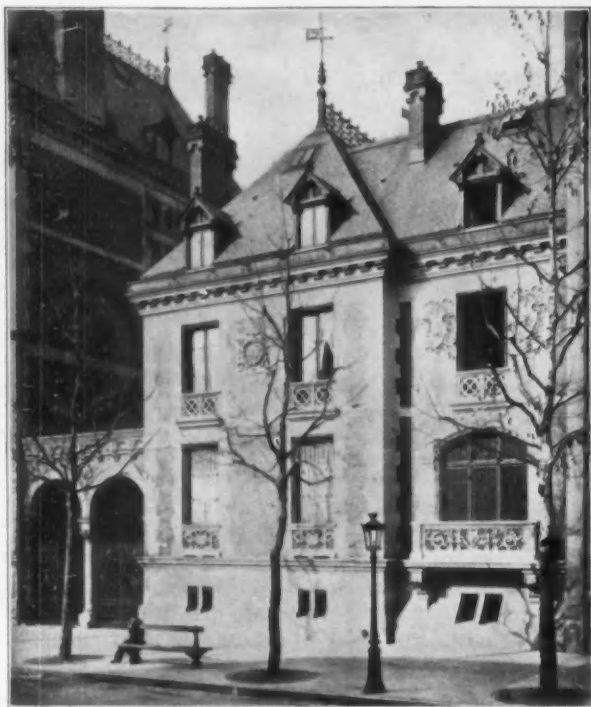


FIG. 8. PRIVATE HOTEL, PARIS.

there is a large number of brick houses in Paris and the provinces. We have a right to hope for an improvement in these brick residences in the future. More satisfactory buildings of this material are erected now than twenty years ago. We begin by the oldest ones, and will examine, in another article, the most interesting modern houses. We will be sober of commentaries on the works



FIG. 10. PRIVATE HOTEL, PARIS.

that deserve but few. First, comes quite a common type of private house (Fig. 13), such as we see often in Paris, — frames of white stone and reminiscences of Louis XII. architecture. Such is the formula dear to many a contemporaneous architect.

The next example (Fig. 7) shows another and more classical style, white stone and brick combined. This



FIG. 9. PRIVATE HOTEL, PARIS.



FIG. 11. PRIVATE HOTEL, PARIS.

sadly lacks individuality. Among the cheaper houses there have been many very small ones built in the style of the one in the next illustration (Fig. 9), of brick in two shades of red, and somewhat awkward applications of enameled terra-cotta. Houses resembling this one in general effect are, alas, too often to be found.

The residence shown in Fig. 8 is of more elegant appearance, but built after the same idea,—white stone at the angles, the body of the building of plain brick, and the great windows, with balconies, in the Renaissance style.

I prefer the house pictured in Fig. 10. Here we have a real brick building. The architect has sought the decorative effect in the material alone; he has ignored the half Renaissance, half Louis XIII. formula which has been so painfully abused. The window frames only are of stone, but we cannot see the advantage of it. The rest with the little motive of dark brick is of good construction, frank and logical.

We must bring our first examination of private buildings to a close with a glimpse of a big private house on the Place Malesherbes (Fig. 6), the most important one of its kind to be seen in Paris. Here is no modern style, but a quasi-restitution. This is historical architecture, and we are in the midst of the Renaissance; the different parts of the house are clearly accentuated, the dormer windows monumental, and the roof high. The color effect lies still in the contrast between white stone and red brick, which is here, as in many Renaissance monuments,—the Louis XII. wing of the Castle of Blois, for instance,—of two shades. We see this in the view of the detail (Fig. 11).



FIG. 13. PRIVATE HOTEL, PARIS.

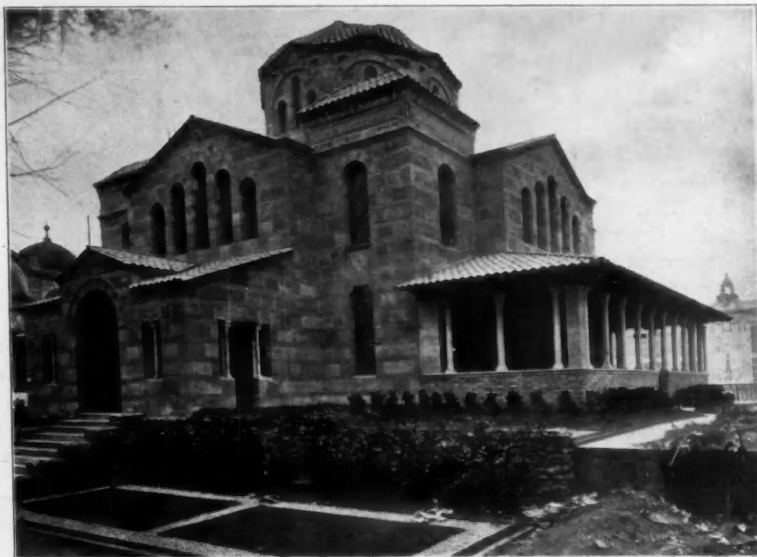


FIG. 12. GREEK PAVILION, PARIS EXPOSITION.

This is a house of lordly dimensions, but it is a pity that the architect was content to make a copy. Brick was thus employed four centuries ago. We can, in our time, create works which are more personal to us.

This is what I shall prove in my next article.

CLAY GOODS FOR HOSPITALS.

AN eminent German doctor has recently been discussing English methods of hospital construction, from a doctor's point of view. He says that our architects are too fond of erecting barrack-like buildings of enormous size, and that the walls of these latter tend to absorb to such an extent that they soon become contaminated, and are powerful agents in the propagation of certain forms of disease. Instead of these enormous permanent buildings for hospitals, he advocates the more extended employment of smaller isolated buildings, which can be rapidly destroyed on the appearance of anything like unfavorable symptoms, and new buildings erected in their place. There is much in the German critic's observations, but they fail to appreciate the enormous advances made in recent years in the employment of sanitary clay goods for hospital purposes. In such hospitals as have been properly equipped, where the walls and floors are entirely covered with glazed sanitary ware, the outer walls of the building of glazed brick, and where practically every part of the working portion of the hospital is armored in the same way, there is no necessity for the erection of trumpery temporary buildings. We do not know of a single case of "hospital fever" in properly constructed and defended hospitals, where sanitary clay goods have been adopted. But we must say that now and again there is some room for improvement. The fixing of glazed tiles as a dado is at best a poor expedient, and no architect worthy of being called a hospital specialist would dream of adopting it, unless, indeed, it were a question of finance, which, unfortunately, is too often the case.—*The British Brickbuilder.*

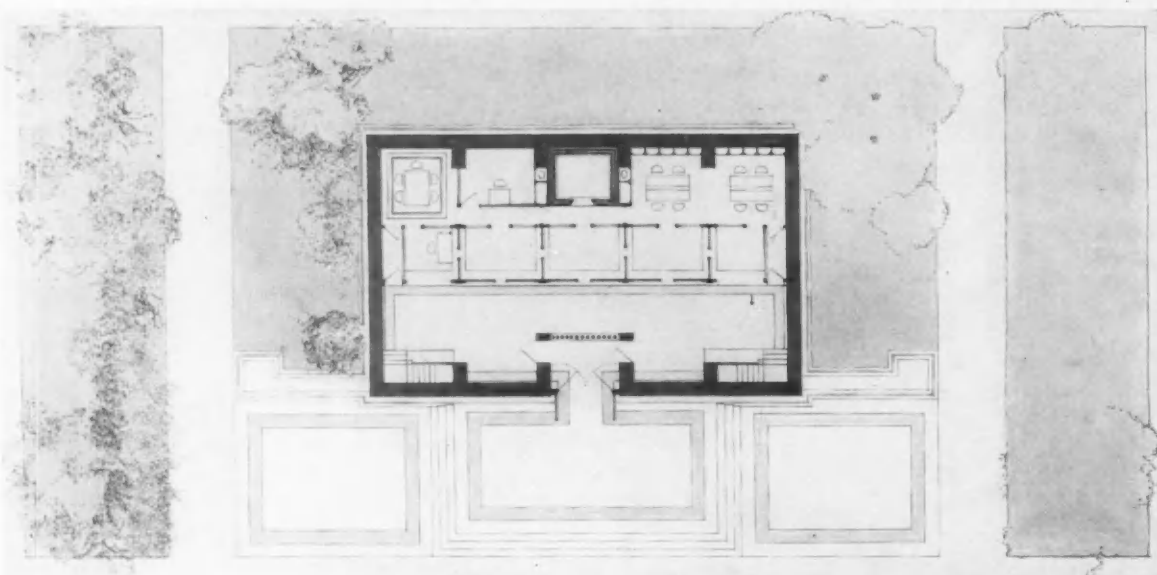
✓ The "Village Bank" Series.¹ V.

BY FRANK LLOYD WRIGHT.

WHILE there is probably little romance about a bank,—less poetry in the bray of Sancho Panza's substantial, positive gray donkey than in the sound of Rosinante's spirited neighing,—yet the community likes to feel that this same bank is there to stay. It is, in fact, the town strong box, and it is a temple to the God of Money, as modern temples go. In its temples, though they perform the function of modern mercantile machines, the community would find the lack of some attempt at ideal enrichment intolerably offensive. Just what this ingrained human love of ornament is, is not clear—not yet. Though this love is more indiscriminate than ever, more easily satisfied with meretricious gewgaws and meaningless signs and symbols, we may be thankful that

some concession to the time-honored love of ornament, with a monumental and significant simplicity arbitrarily associated in the popular mind, perhaps, with a tomb, or a mausoleum. Most mausoleums are neither monumental nor significant, unless they are monuments to the well-meaning ignorance of their builders, and significant of a cold, stupid horror of death. The whole genus "monument," as we build it in our cemeteries, rests upon a false basis,—a memorial is better.

The plan is intended to satisfy the necessities of the average banking business in a direct way, without waste space or waste motion. The entrance (and it is the only entrance) is barred with bronze gates closing over bronze doors, one of which would remain open during banking hours; as both bear the legend of the bank, one would always be in place to advertise its function. This matter of advertising, as usually practised, seems better adapted



A VILLAGE BANK. GROUND PLAN.

we still possess it, for back of it are probably the only instincts that make life bearable or desirable.

This design has taken shape with some conception of the dignified character of the mercantile machine, and

PROGRAM.

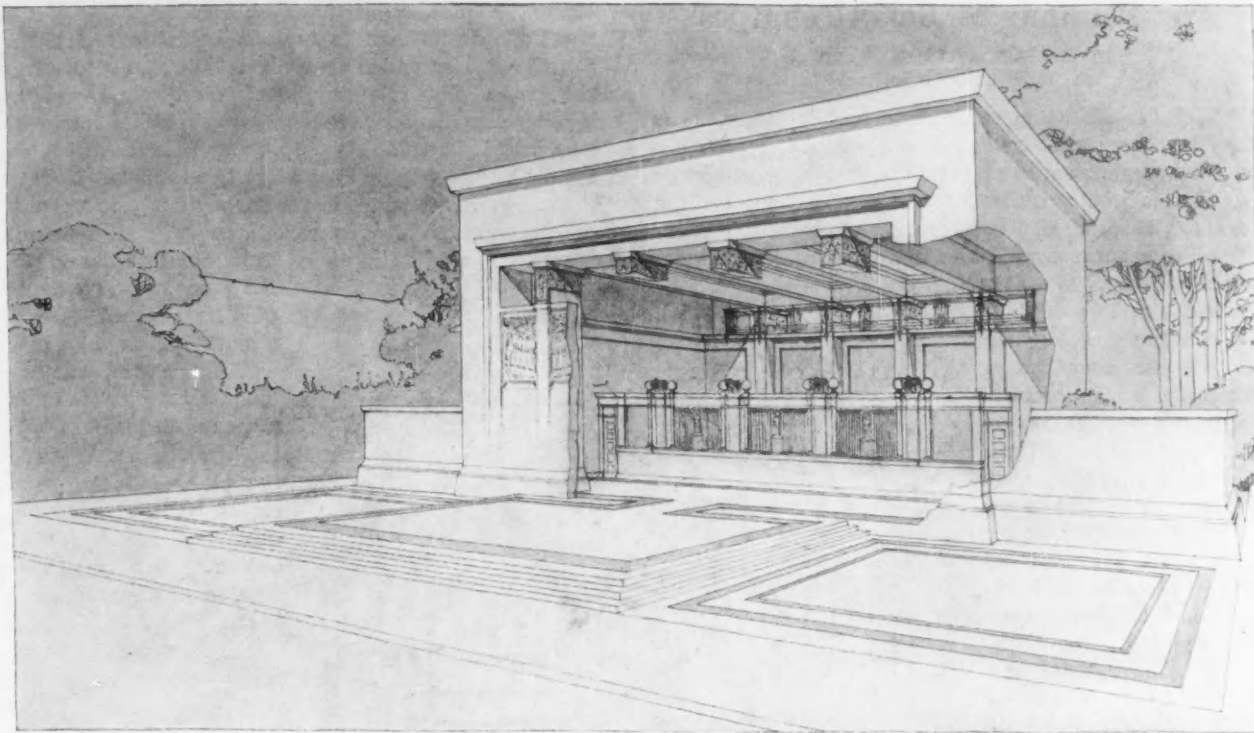
The problem is to be treated primarily from a picturesque standpoint. The building is assumed to cost in the vicinity of twenty-five to thirty thousand dollars, and be only one story in height, the interior arranged for a main banking room, a small consulting room, a directors' room about 12 by 14 ft., a vault measuring outside of the brick walls 8 by 10 ft., and any other interior arrangements which may seem suitable. The main entrance is to be preceded by a small vestibule, and the building itself should be set back not less than 10 ft. from the street line and be isolated on all sides. The site is supposed to be a level one, and the bank will be in close proximity to the public library, the village church, the schoolhouse, and the court-house, which together will form the center of a town of a few thousand inhabitants. The design is to be of such nature as is suitable for being carried out in burnt-clay products.

to the handling of a three-ring circus than the handling of a dignified institution.

Within these doors there is a vestibule of glass and bronze, and the customer is compelled, by the swinging of the doors, to enter at one side and leave at the other. The public is thus thrown directly to the tellers and clerks. The cashier is located to the left, although the plan might better be reversed to keep the custom of moving to the right. The cashier uses the director's room, which is ceiled with glass, as a consulting room. The stenographers' room also is conveniently connected.

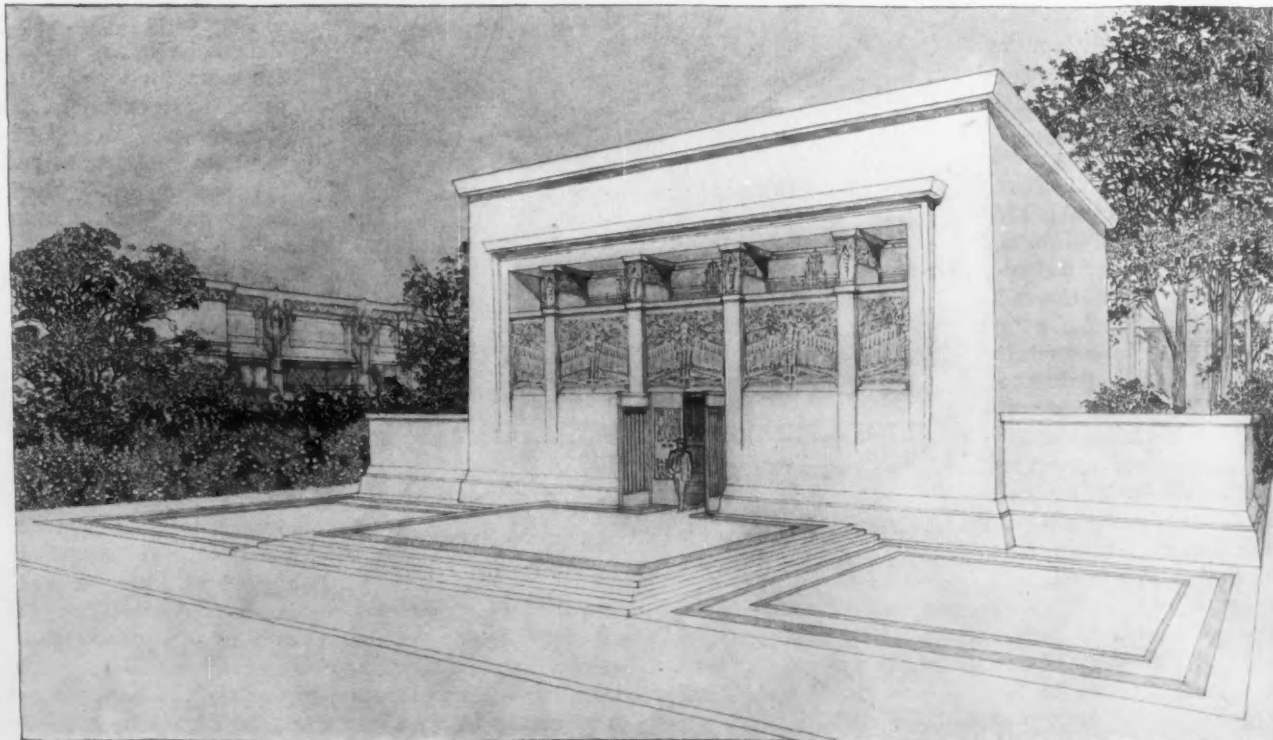
All this machinery, including the vault, is kept down to the height of the top of the screen, and the screen presents a solid front to the public. A door is left at either end,—one for customers, cashier, and directors, and the other for clerks, all coming and going through the one doorway to the street.

Stairs are provided on either side of the entrance to supposed safety deposit vaults below, artificially lighted and ventilated. This provision for the deposit vaults presupposes a clerk below; in a village bank probably a luxury. The stairs could be moved within the control of the machinery behind the screen if necessary.



This machinery is lighted overhead and ventilated from above, as shown in the section; the windows at the sides passing free behind the caps, as a screen of bronze frames, sash, and glass. The interior walls are lined with a mosaic of enameled ceramic work laid in broad panels marked by simple lines of gold mosaic, and the screen is to be constructed of terra-cotta and antique bronze, the terra-cotta being worked out in a soft Pompeian red, and the bronze finished in verdegris. The building is con-

structed entirely of brick. The ornamental members throughout are of terra-cotta, except the window sills and the caps, which are cast in bronze, finished in antique verdegris. The floors in the public space are laid with a mosaic of unglazed ceramic. The design makes use of the structural feature of the piers carrying ceiling beams of the long span as the decorative element providing the enrichment of the façades, and this feature is merged with the gently sloping walls in eminently plastic fashion.



A VILLAGE BANK.

The Planning of Small Libraries.

BY CHARLES KNOWLES BOLTON.
(Librarian Boston Athenæum.)

BEAUTIFUL as many library buildings are, it is significant that few librarians or State library commissioners, when approached for information, will name one that is wholly satisfactory in arrangement for the work for which it was constructed. This is to be explained in several ways. The library as an educational and social factor is still in course of development, and the plan must change as the purpose broadens or changes. The librarian, too, is not always competent to guide the architect, and the latter is frequently unwilling or unable to believe that a good design for this particular kind of building can and ought to be developed from the inside rather than from without. The usefulness and convenience of the building should be considered first and foremost, for on that depends its success; its architectural beauty is capable of as lasting and real value to the community, but it must be subordinated to the floor plans.

It is certainly true that many librarians do not know what they want. They had for some years a disposition to condemn the alcove system of arrangement as wasteful and inconvenient for modern needs, however beautiful and appropriate it may have been when employed in the stately libraries of Europe, and in the earlier institutions here. Architectural effects, and even the "bookish atmosphere" which is so valued in the old-world ecclesiastical and collegiate libraries, seemed for a time somewhat out of place in the smaller libraries devoted to the public. Town libraries are the meccas not so much of scholars as of laborers, of children unnumbered, and the countless readers of light literature. Of what use is a "bookish atmosphere" and an alcove system to them? the librarian began to ask. Moreover, the sleepless energy of the printing-press and the book-bindery soon

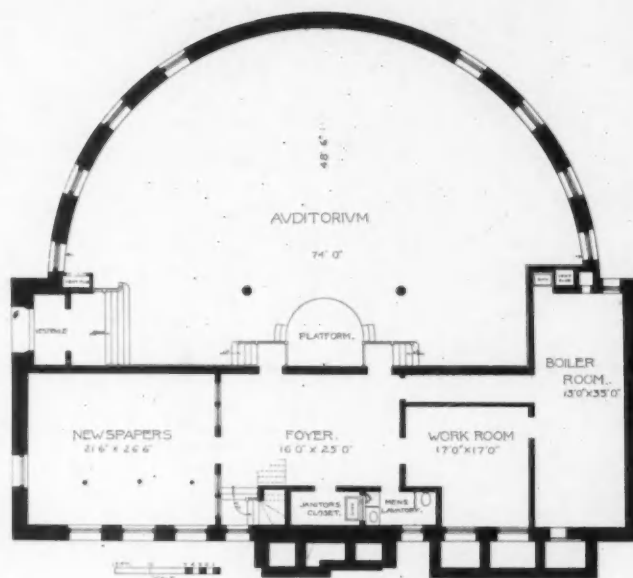
led to the annihilation of available shelf space, and there was little or no land in most town centers over which alcove could be added to alcove. Did the alcove waste the space? Was it appropriate? Here was a real problem. As an answer came the stack, with its immovable steel cases, placed so close together that the aisles, with their glass or gridiron floors, look like tunnels. Now that the movement to admit to the shelves has grown popular, the objections to alcoves have been in a measure withdrawn. They give an air of quiet comfort that charms

the student. The books that interest him are almost within his reach, and the partial enclosure made by the cases affords a restful seclusion. When the alcoves are a part of the plan, and the outer ends of the cases form columns which reach to the ceiling, there is a unity, dignity, and seeming fitness to the whole.

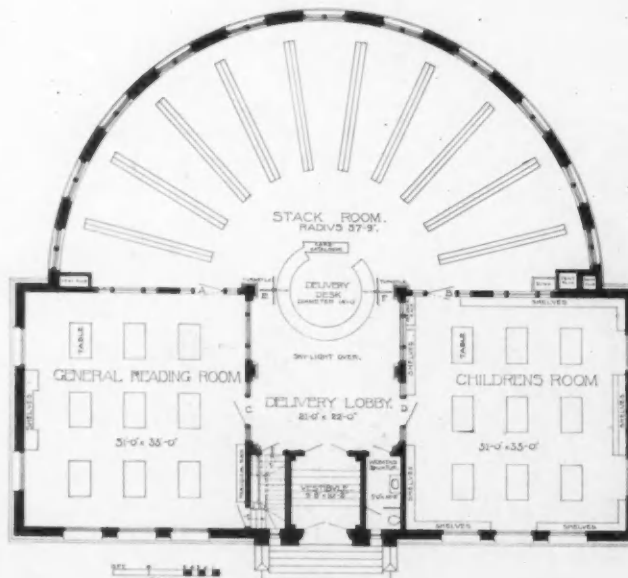
At present the two systems—alcove and stack—are being combined. From two to three fifths of the books, including works of reference, belles-lettres, history, travel, and biography, are arranged in alcoves accessible to readers, with few, if any, restrictions, but under careful supervision. When the number of volumes makes it necessary, an upper tier of alcoves is added. Care should be taken to have the room high enough to permit a future gallery, and also for adequate gallery windows, reaching so near to the ceiling that light will be thrown upon the top shelf of each bookcase. A high light is of much more value than a light entering close to the floor.

In village libraries, to cost from \$5,000 to \$15,000, the books of general interest may be placed about the walls of the reading room without need of alcoves, until the collection grows large enough to compel an arrangement of

movable bookcases to form alcoves. A wise foresight suggests double windows or narrow windows close together, so that there may be one for each alcove when crowding makes alcoves imperative. It happens not infrequently that an extra bookcase must be set in a



SECOND FLOOR.



FIRST FLOOR.

CARNEGIE BRANCH LIBRARY, LAWRENCEVILLE, PA.
Alden & Harlow, Architects.

particular place because the number of books upon a certain subject (the Philippines, for example) has increased at that point with unexpected rapidity. To be able to provide shelving in this way, with proper windows for light, may put off for some years an entire readjustment of books in all the cases. In a library, to cost from \$15,000 to \$50,000, fixed alcoves add to the quiet, and may well be a part of the plan.

In the ordinary arrangement of space, the reading room is on one side of the entrance. There is a children's room on the other side, and the delivery desk is opposite the front door. Back of the desk is a stack, which forms an ell or projection. All persons passing to and from the stack must go by the attendant at the desk. The projection may be suggested architecturally, but not at the time constructed, if the building is small. In branch libraries, or in libraries having collections which grow very slowly, a semi-circular wing is attractive. The cases radiate from the delivery desk, and the windows throw light between them. The spread of the cases may allow space between their outer ends for small study tables and chairs. The stack itself (for the storage of books relating to science, etc.) should have aisles at least 30 ins. wide; the top shelf of each case, on which the books rest, should be not over 6½ ft. above the floor, although in the alcoves one or two higher shelves may be used to advantage, because a step or ladder will be at hand. Shelves are frequently made so broad that ninety-nine out of every hundred books do not reach the back board. A space is then left where dust gathers, and an occasional book, crowded out of sight by a careless boy, lies

forgotten and is after a time reported as lost. A shelf 8 ins. wide is all that is necessary. The length of the shelf should not exceed 30 ins., to avoid sagging, and the material may be of steel or of wood. Shelves of iron or steel are much in use, but they are said by many to injure the books. As a building settles, the slightest variation in the uprights throws the steel shelves out of adjustment, and an expert must be employed to refit the metal, while

a janitor can alter shelves of wood whenever they become too short or too long to serve their purpose. Most librarians allow about 10 ins. between the shelves, and any book which is over 10 ins. in height must lie on its front edge until out of shape, or must be taken from its proper place to sleep in oblivion in the corner set apart for large books. A librarian will sometime be found bold enough to advocate a greater space for all works except fiction.

On every floor of the stack there should be space for a small table and a chair, with a shelf to hold books

reserved for special students. In this way, the stack becomes more than a mere storehouse, and serves to provide a series of quiet study rooms. When the stack consists of three or five floors, the middle one should be on a level with the delivery desk floor, with a stairway going down and another leading up, in order to minimize the amount of climbing forced upon an attendant.

Provision for a stack should be insisted upon in every library plan, as a means of escape from the pressure which inevitably comes upon a growing collection of books. It may be unimportant in extent, but it must be capable of enlargement. Architects often plan buildings so perfect in proportion and in ornament that they cannot afterwards provide a stack without ruining their exterior designs. In a few years the disgusted trustees are forced to ask the people for more money to mutilate the most attractive edifice in town. In consequence, architects should endeavor to plan a building, which is either capable of enlargement without disfigurement, or has extra space already provided, though it may not be used for years.

The delivery desk, which is also an information desk and a vigilance station in a small library, is closely associated with every function of administration, and should be a distinct feature of the plan. It must be near the stack, so that books may be brought quickly for those who do not care to visit the shelves. This operation, and the cancellation of the charging record when books are returned, require the best of light — overhead or at the side — and steady. Finally, the person in charge should



LIBRARY AT CHAMPAIGN, ILL.
J. A. Schweinfurth, Architect.

be able, if the library cannot afford to have two assistants constantly on duty, to see the greater part of every room which is open to the public—the reading room, the children's room, the reference room, and also the card catalogue, which must be well lighted and near a table.

If the library is too small to boast of all these, the subdivision of one large room by glass screens may serve the same purpose; in any case there will be need of ease in supervision. Much may be said in favor of an unbroken roof, and a plan which has as its chief feature one large room. This is economical in repairs and simple in administrative problems.

It will be seen that much is required of an architect in placing the delivery desk. One is amazed to see in some fine buildings a desk dependent upon artificial light, and so placed that secluded corners (even in small buildings) permit children to romp and commit acts of vandalism beyond the eye of the attendant.

A word in general. Among the requisites for a library of any pretension to good work are a reading room and a children's room. A larger library may be expected to have a reference room, although the reading room will answer the purpose, a library work room, and a conversation room, which may also be the historical and exhibition room as well as a meeting place for the trustees.

Equally important in the large library are the bicycle room, the librarian's room, a room for unpacking cases of books, lockers for employees and habitués, and a lift for heavy books. The conversation room may profitably be provided with shelves for a collection of standard authors to catch the eye. It is coming to be recognized as the duty of every town library to preserve every book, newspaper, and pamphlet of local interest, and to exhibit antiquities, social as well as geological and historical. A room, or even a bookcase with glass doors, can soon be filled with attractive gifts from old mansions and farmhouses. A series of portraits of pioneers is a delightful addition to the historical room, and a map with names of roads, lanes, brooks, hills, meadows, swamps, and the sites of

old houses is a valuable acquisition. Owners of colonial and revolutionary, and even later military commissions, signed by famous statesmen, will gladly give these family papers to be framed and hung forever in the library.

There should be wall space in every library for exhibitions of pictures. A library art league has been formed in an eastern state to pool subscriptions for a fund; several groups of pictures are purchased each year, and are forwarded from member to member.

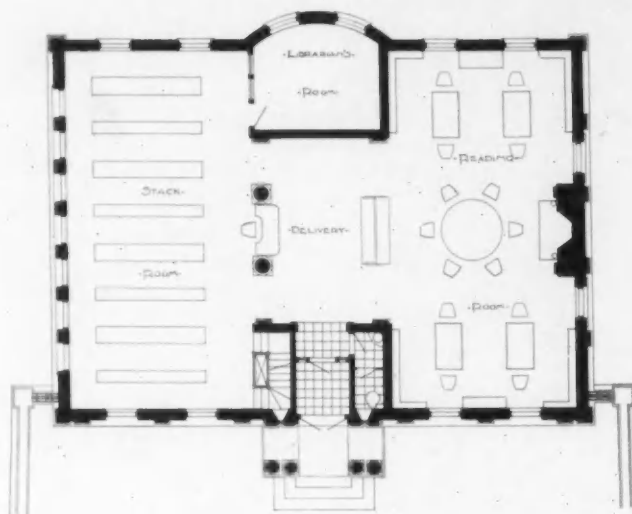
Still another feature of the more enterprising library must be mentioned, the school-reference collection. The assistant in charge of work with the schools needs, as provided at Brookline, a large sunny room, to contain children's reference books and many copies of works useful as collateral reading. A room of this character may be situated in the basement.

The building should in any case be set high enough out of the ground to make a light, airy room in the basement possible.

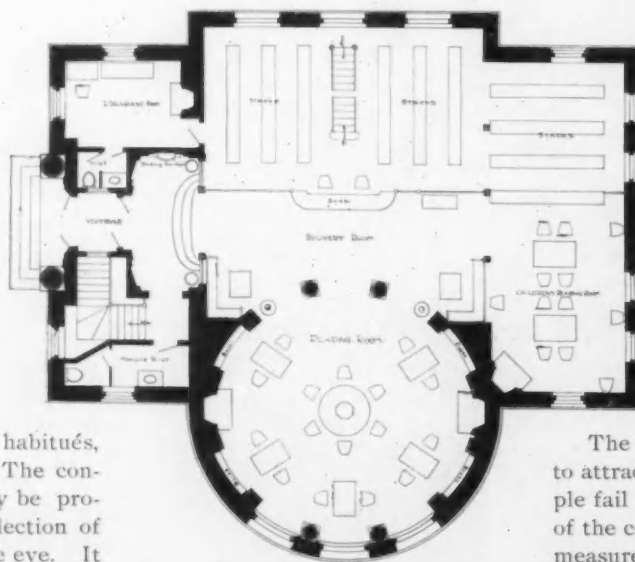
It is hardly necessary to say that thought should be given to the position which the library is to occupy on the land. It seems inconceivable that one of the best firms of architects in New York could be guilty of placing a building on a lot in such a way that enlargement is possible on one side only, and then to block that side by an enormous old-fashioned chimney and fireplace. The trustees of that library are now facing a problem that these architects have done their best to make impossible of solution.

The usual conveniences and devices to attract, instruct, and amuse the people fail to interest a considerable part of the community. This is due, in a measure, to the fact that libraries, and particularly those given as memorials, are furnished after the taste and station of the donors or trustees. It never occurs to a man who is able to

make and give away a fortune that the leather-seated chair which he enjoys is to the laborer less comfortable than a pine stool. Women of the laboring classes are quicker to adapt themselves to more luxurious surroundings, and they soon feel somewhat at home in a beautiful room with its mahogany furniture and oil paintings; but



RUSSELL LIBRARY, PLYMOUTH, MASS.
Everett & Mead, Architects.

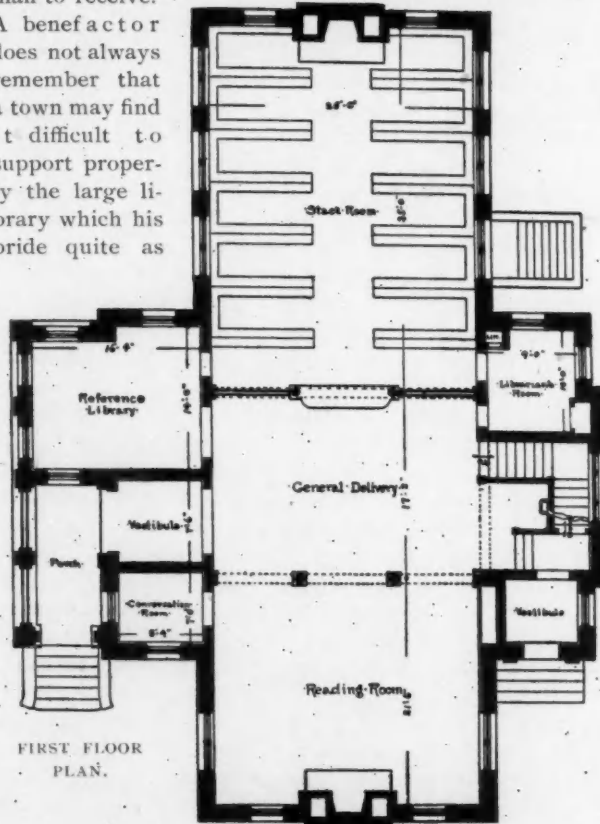


FIRST FLOOR PLAN.
LIBRARY AT WAYLAND, MASS.
Everett & Mead, Architects.

their husbands are in many cases far less appreciative of these things. These men need the influence of the library, and it certainly should seek their friendship and support. Radical measures are necessary, and a lounging room with daily papers may bring the desired result. It can best be placed in the basement, with a separate entrance from the street, so that with its toilet room it may be used after the rest of the building is closed. Smoking will perhaps be interdicted, but there should at least be a place where men may feel at home. The conclusion can hardly be avoided, that, whether you will or no, the public library is slowly but very certainly drifting toward the position of the poor man's club-house.

A final suggestion seems appropriate in an age when it has been proved by example to be more blessed to give than to receive.

A benefactor does not always remember that a town may find it difficult to support properly the large library which his pride quite as



FOGG LIBRARY, SOUTH WEYMOUTH, MASS.
Cutting, Carleton & Cutting, Architects.

much as his generosity prompts him to build or bequeath. Several New England towns have massive granite buildings which stand as monuments of folly. Had the same sum in each case been divided, half for a modest building, and half as a fund to provide income for administration, leaving to the town the task of purchasing books, how much greater results might have been achieved! Money for administration means a wide-awake trained librarian, who can convince the people that every dollar spent for books is well spent. But building and books alone can never persuade a sleepy town of the need of an up-to-date administrator. Architects have an opportunity in this matter to advise wisely and unselfishly those would-be benefactors who have the interests of others near to their hearts.

Modern Architecture.

(Continued from July number.)

The making possible and the facilitation of so many constructions, the unlimited choice of dimensions of rooms, the execution of any prescribed pier construction, the free selection of and form of ceiling, with artificial lighting of the interior at pleasure, the great reduction in the thickness of walls, security against fire, and the great reduction in time required for erection, and many other things, are entirely due to the use of this material.

The immense importance of construction and its energetic influence upon modern architecture have been sufficiently emphasized, but it will save time for the future architect to study this with the most thorough attention.

Well-conceived construction is not only the vital requirement of every artistic architectural work, but it cannot be sufficiently repeated that it places in the hands of the modern creative architect an infinite number of suggestions for the creation of new forms in the fullest meaning of the word.

Most structures must be arranged throughout by the architect himself. But this not only demands constant progress and the acceptance of every novelty in the domain of construction and materials, but also rightfully requires in the architect a strongly cultivated and natural ingenuity.

PRACTICE OF THE ART.

There have been frequent mentions of the "Practice of the Art." By this is meant skilful practice in the production of form. It will become manifest in every one who devotes himself to the artistic profession for a long series of years. I therefore consider it appropriate to arrange its most important principles in this essay. Before entering on the subject proper, the question should be considered: "How are architectural works to be represented by drawings?"

It is not to be denied that so long as architectural creations remain on paper, very little interest in them is manifested. This is caused not only by the fact that almost every observer fails to bestow on them the intellectual labor required for understanding a project, but this is also likewise the reason why so many architects prefer to represent the design in a spiritless manner, not in accordance with the demands of modern taste. Since constant improvement in the mode of representation occurs by new artifices and inventions, and the taste of the designer varies, the method cannot be precisely fixed, so that mere suggestions can only be made here.

Commencing at the alpha of architectural drawing, it must first be emphasized that all jaunty mannerism is entirely objectionable, and that it must always be the problem of the architectural artist to place his ideas on paper in the clearest, most accurate, neat, direct, and convincing way. Every architectural drawing exhibits the taste of the artist, and it should not be forgotten that *proposed* and not *existing* objects are to be represented. The mania for presenting the most deceptive view of the proposed object is therefore an error, since it must contain an untruth. All charming accessories and har-

monies taken from nature, embodied in a good water-color drawing and transferred to a non-existent object, are intentional deceptions, and are therefore to be rejected for that reason.

We may say that it is more direct, correct, and, therefore, more natural to place the work before the eyes of the observer by a representation adorned by symbols, arousing interest and filled with ideas. The artist thus has opportunity, while always remaining within the truth, for exhibiting imagination, taste, and his preferences, for moving and captivating the observer. There is now a not sufficiently esteemed youthful freshness in modern art tendencies and publications. It is only necessary to refer to the large number of excellent English, German, and French art journals, where almost everything is presented in a modern, artistic, allegorical, or symbolical manner. Such publications offer an abundance of suggestions to the architect. One must nevertheless be warned against too much of this "doctoring." A refined taste will further be a guide to the architect, and in spite of rich suggestions it will cause him to adopt in his drawings only things that properly accompany the chief object and enhance the interest of the observer.

He will naturally employ only those modes of representation from which the greatest effect may be expected with the least expenditure of time, and which do not prevent easy and beautiful reproductions. By the use of drawn borders, titles, separate details, etc., the most harmless orthographic drawing may be transformed into an art work worth seeing. Architectural representations intended for exhibitions require the exclusion of everything inharmonious with their surroundings. Plans, elevations, and sections that show broad surfaces of white paper can never be arranged between pictures and sculptures, since they certainly disturb the general effect. This is also the reason why architectural works are so frequently treated in a more than neglectful way in exhibitions.

However important the manner of the representation, this is evidently of far less importance than its subject, to which we will return after this brief digression. As elsewhere in this essay, only certain important principles can be made prominent here. The most modern of all in architecture are our existing great cities. Their earlier and smaller dimensions originated an infinite number of novel questions, whose solution is expected through architecture. In the most recent period, the problem of improving the plans of cities has become especially prominent, there being in many cases an imperative necessity to strive for a rational solution of this question, caused by the enlargement of cities.

A combination of art and purpose is always, according to modern views, the first requirement of a good solution. Cases may indeed frequently occur in which the artistic idea overshadows the purpose, but it must naturally be assumed that the converse relation occurs in municipal architecture and engineering, since the opinion is certainly becoming general that no sum of money for business purposes is too great, while for art, "nothing" is just right. It is sure that the practical question in city improvement must be most prominent, and that really art has only to see that all vandalism is

avoided. It will only become more definite and demand its rights where its own work naturally occurs. This causes the requirements of traffic, business, and sanitation to be accurately stated and fixed, and the architect who designs the plan of the improvements must endeavor to fulfil these demands in an artistic manner.

Every improvement in a city naturally divides into two parts, one in which technical science and art act without restriction, especially in what is built around the exterior of the city, and another, in which the desire for a new form must adapt itself to the multitude of existing houses, to the art monuments, to existing arrangements and plans, as in the interior of the city. Both naturally depend upon each other, and there are many problems that can only be solved by a consideration of the entire domain of the city. Unfortunately, greater emphasis is always laid on the apparently more pressing inner portion, and the suburbs are sparingly treated. This is entirely wrong, since new difficulties must speedily arise and problems appear that just as urgently demand solution.

It is certain that some future requirements (tracks, parks, food supply, removal of sweepings and snow, transport of building materials, funeral processions, stations, precinct buildings, etc.) will be more conveniently fulfilled, be better in appearance and cheaper if a broad railway extends throughout a plan for improvements. From the neglect of the suburbs, especially in Vienna, there has resulted great inconveniences, successfully avoided in nearly all German cities, where the improvements have made the suburbs more habitable, healthier, cleaner, and more beautiful. The reverse is the case in Vienna, where the suburbs of the city are no better than the Hungarian villages that have become proverbial. It may be stated that the constantly pressing enlargement of a city is certainly in direct relation to the traffic conditions, and that bad traffic facilities must produce high cost of ground, an increased number of stories, and a contracted style of architecture, and badly planned suburbs materially contribute to make this evil worse.

Streets and squares demand the greatest care and attention in the plan of a city, and first require consideration. It is unnecessary to prove that the magnitude of a square must be in proportion to the height of the buildings around it. The dimensions of a square appear to be taken at pleasure, yet their natural limit is that the maximum height of the surroundings is pretty clearly fixed. Whether these are edifices or trees, this height can scarcely exceed 97.6 ft., except for higher portions of buildings. If a square with the given height is to produce a sufficiently powerful impression on the eye, with other proper conditions, about 29.64 acres may be assumed as the esthetic limit of area. The Place de la Concorde in Paris has an area of 24.7 acres (including the Seine).

But the surface of so large a square requires for artistic reasons certain points of rest for the eye and very bold subdivision. These rest-points are produced by locating statues, architectural monuments, fountains, etc., while rows of lamp-posts, balustrades, walks bordered by trees, broad flights of steps, or sidewalks, furnish the guild lines for the eye and subdivide the

surface. For the esthetic limit of width of a street, with buildings 65.6 to 98.4 ft. high, about 262.4 ft. may usually be taken, but this likewise requires strongly emphasized subdivisions, so that this may be intelligible to the eye with ease and pleasure. From experience, the length of a street should not be less than five times its width, nor exceed fifteen times without a strongly marked interruption. The least dimensions of a square evidently depend upon its form and on the height of the buildings enclosing it, while to the width of streets must be applied the principle generally accepted everywhere, that the height of buildings on them must never exceed the width of the street.

It is here necessary to oppose the preposterous view, that a great portion of the public cherishes and decorates every open space by a formal garden. The advocates of this opinion invariably use numerous catch-words in a bombastic way, such as visual width, aerial center, absorber-of-nitrogen, etc. These catch-words are embodied in patriotic phrases and given to the public, everything being asserted to be extremely sanitary, but not stating whether such designs are likewise beautiful. Such sanitary arrangements are more than questionable in their effect, these miserable caricatures of gardens are always in every one's way, and then render impossible one of the most beautiful of architectural motives, the effect of surfaces and their leading lines. The enchanting effect of the Place de la Concorde in Paris, or of the Place of St. Peter in Rome, will permanently remain in the memory of a visitor. Formal gardens on those places (fortunately, no one has had the temerity to desire this) would have entirely destroyed their effect. But in Vienna, one of the largest squares in the city (City Hall Park, containing nearly 20 acres), has been robbed of all artistic effect by an absurd formal garden, and also disfigured by awkward arrangement scorning all practical requirements. Formal gardens in cities must fully satisfy both esthetic and practical requirements (two ideas that generally coincide), both providing for the pedestrian in haste, by a shaded path, but also preserving the imposing effect of the area of the square.

In addition to what has been said, the park question presses into prominence, and therefore demands brief consideration. In a proper and original sense, parks are extensive domains, including beautiful landscapes, causing their wealthy owners to make them family seats. Drives and footpaths are laid out to connect in an easily accessible manner, and to bring into picturesque alternation, hills, woodland scenes, groups of trees, lakes, ponds, rivers, brooks, clusters of rocks, lookout points, etc. At the most beautiful and most suitable places are built castles or kiosks. These motives are produced by the contrast of nature and art, but are changed into caricatures or imitations of the English park (City Park in Vienna, and so many others) by a reduction in scale and by the introduction of objects, neither appropriate to the ground nor to the location. Further reduction evidently makes them ridiculous, as shown by many examples. This is the more to be lamented, because Renaissance masters, and particularly those of the Barocco period, have left us unsurpassable models of formal gardens near buildings as examples worthy of imitation. They

have clearly pointed out the true path to be pursued, so that the edifice and the formal garden may reciprocally support and supplement each other in effect. It is not sufficient to recommend the architect to energetically lay hold of this idea, and to elevate as rapidly as possible the art of landscape gardening, now, indeed, at its lowest.

Thus he must not only beautifully treat the principal arrangement of such designs, but must also so far inform himself in regard to the flora that in designing such a project it will be an easy matter to undertake the proper arrangement of groups of trees, borders, shrubbery, and hedges; he must know the hardiness of plants under local conditions; he must be fully acquainted with the color and appearance of the proposed plants; he must have a clear knowledge of the ground and of its artificial grading, of the location and arrangement of avenues, vistas, points of rest for the eye on lawns, of artificial waterworks, of the use and placing of statues, of hothouse and decorative plants, of the construction of conservatories, of carpet gardening, and of the apparatus for maintenance. He must further be accurately instructed in regard to the kinds of trees suitable for avenues in different cases and what additions of hedges, shrubs, etc., may be required, and finally, he must know how to successfully provide against the dying of vegetation along streets from the escape of gas, leaking of sewage, vibration produced by wagons, and from lack of sufficient depth of ground beneath it (on account of canals, sewers, etc.).

Attention should be devoted to the monumental effect of the surface of the ground. Squares may be treated in mosaic patterns by paving with stones of different colors, and by the arrangement of lawns with isolated plants, then obtaining the grandest effects by the addition of principal lines, well-located objects of display, etc. These are in such intimate relation to the artistic and monumental appearance of the square and of the street that their most careful consideration cannot be sufficiently recommended.

Returning from this digression to the forms of squares and streets, it is evident that these must be strongly influenced in another way by the architect to fulfil artistic requirements. But on many questions the architect exercises no influence, since other reasons generally predominate over the esthetic one. The most important of the remaining requirements for producing an artistic and richly varied result are, that the proper location be fixed for public buildings, and that the always omitted esthetic, but absolutely necessary, terminal object be provided on the visual axis.

The neglect of artistic requirements, the principle of utility so prominent everywhere, an antipathy to great monumental works of architecture, an invariable lack of money for art effects, gives the architect many a hard problem, and these and similar difficulties have produced a kind of sham architecture that attempts to conceal faults by deception. The obsolete apartment house façades and the pattern type of façade most recently affected (arcades and buildings on Francis Joseph Quay, in Vienna), an artistic and not a practical suggestion, belong here. The swindling ideas, teeming with deceptions and recalling Potemkin's villages that occur in such arrangements, cannot be sufficiently censured. No other

art period has such things to show; they give a very melancholy representation of the art conditions of our era. A partial excuse for them may be that taste takes wrong paths toward the desired artistic expression, and that modern mankind must generally deny to it the means of attaining this, since the continually increasing multitude of buildings for rental increases in a ratio very different from that of the necessary number of public edifices.

Modes of living daily become more similar and have almost suppressed the separate house. The building regulations have done more, and these cause the present uniformity of our houses for rental. In no other city does the modern rented dwelling play so great a part as in this (Vienna). Conditions of ownership of land in London have produced an architectural type for this purpose, which disclaims almost entirely the assistance of art, and in Paris a solution has been reached, starting with the requirement of placing the servants in the mansard story. The area covered by buildings in Berlin is greater than in Vienna, and hence the prices of land there have never reached that height which has injured our long-restricted city. Such a great increase in the number of stories in buildings for rental would not be possible, like that so common in Vienna. Buildings for rental (or investment buildings) are not rare here that have six or seven stories above the street level. Similar types of edifices in many stories, with the larger residence of the owner in the principal story and accented on the exterior, are becoming more rare. Warehouses and detached dwellings are not included here.

Under the compulsion of economic conditions, our present buildings for rental fulfil no other purpose than to accumulate small and easily rented flats in a single structure so as to produce the greatest revenue from the capital invested. After the rental value of the different stories was approximately equalized by passenger elevators, it naturally resulted that an architectural treatment by accenting the different stories was no longer possible, so that architectural exteriors are entirely mistaken when their motive is sought in palace architecture, since this contradicts the internal construction of the building. Therefore, in the treatment of the façades of modern buildings for rental, architecture has been reduced to a plane surface, broken by numerous similar windows, to which are added the projecting main cornice, with perhaps a crowning frieze and a portal. The ground principles maintained in this work show that the problem of the art cannot be to contest these economical tendencies, or to conceal them by deceptions, but must consist in the proper fulfilment of even such requirements. The modern eye has lost the usual small scale, and has become accustomed to forms less rich in variety, to longer straight lines, to more extensive surfaces, and to larger masses, so that a stronger handling of the masses and a plainer outlining of such edifices certainly appear to be indicated. Hence, art must chiefly express itself where its dominion remains uncontested and its interference is natural.

Therefore, in case of apartment houses for rental, which will always continue to be the chief factor in the appearance of streets, the architect must seek effects by ornamenting the surfaces, by contrasting forms, by

simple and properly chosen details, and by clearly emphasizing the construction, but without permitting these to degenerate into a mutual strife to excel, as unfortunately too commonly preferred. Designed artistically as indicated above, our apartment houses would very soon combine in an esthetically pleasing view, and they would certainly be suited for all purposes for which the street is provided.

It must always be remembered that a modern great city neither can nor should have the appearance of ancient Rome or that of old Nuremberg.

The importance of the straight line in modern architecture has frequently been mentioned. A number of reasons clearly and strongly indicate its use to the greatest extent. It is a justifiable requirement for the direction of streets, since man always walks in a straight line, and a person in haste would certainly be irritated by the least deviation, causing loss of time. The last decades bear the motto: "Time is Money." Projectors of curved avenues may inform themselves on this point by observing men crossing the surfaces and angles of lawns. Still worse befalls those who introduce inconvenient streets, and many unflattering changes will be made by those led into this difficulty. It is evident that straight streets are not always possible. The curve or broken line must frequently be chosen for lines of streets, to preserve existing buildings, or to produce better forms of building sites. Such are then existing conditions that contribute to make the appearance of the city richer in contrasts and also more interesting.

One matter requires special mention, that breaks in the direction of the street must never be located at the middle of a block. If the straight line, or the shortest line, is admitted to be best for pedestrians, then for carriage traffic it is certainly permissible to arrange slight turns and curves, but only where they would result from existing natural or artistic causes. The greatest protection for the public, demands for carriage use a sufficient width of the streets, and a considerable increase in width at the intersections of streets.

The lack of public buildings which by grand forms or by richer outlines are suitable for interposition between façades of apartment houses to powerfully break the view of the street by strong contrasts, must allow the architect to produce such effects by other means. The most suitable of these are: the insertion of squares, a moderate projection and recession of façades of buildings, the arrangement of parkings, placing subdivisions in the streets, a division of the street by inserted monuments and fountains, and, finally, by objects placed in the street, such as trees, shrubbery, hedges, kiosks, etc.

It scarcely requires discussion that a pious preservation of inherited works of art, a strict acquiescence in the preservation of their surroundings with reference to well-weighted visual distance of view, and many other things afford other valuable means for enriching the artistic treatment of the perspectives of streets.

But the problem of the architect does not end with the artistic treatment of the streets and squares of a city. The most recent period has produced many institutions and many improvements awaiting artistic development. Railways are first mentioned, whose influence on the view of the street is but too frequently fatal. Aside

from all other disturbances produced, railways on the street level nearly always disfigure its appearance, whether they are horse, steam, or electric. This opinion has become a conviction in the great cities. Thus the Parisians would never permit them on the Place de la Concorde, or on the Champs-Élysées, nor the Berliners on the Unter den Linden. Main railways, to which every large city must adapt itself, may be either elevated or subterranean. The choice of either system depends entirely on local conditions and practical reasons. The results for and against them may be collected in a few main points. Subterranean railways, when covered, scarcely affect the appearance of the street, are more convenient for traffic, but are usually more costly in construction, and are disagreeable to the traveling public. Elevated railways sometimes strikingly disfigure streets, are somewhat cheaper than subterranean, and afford the passengers much enjoyment by unobstructed and changing views. But the inhabitants will always decide to preserve the most beautiful appearance of the city, and, therefore, the elevated railway will not receive their approval, which is invariably the opinion of the architect as well.

Law or custom, practical or financial reasons, produce in every city some quarters occupied by villas, manufactories, or dwellings that depend on a suitable location of the city, and frequently develop very rapidly during a period of prosperity. In more recent times there is a certain tendency to restore the importance of the separate house, with the ideals therewith connected, in order to recover what has been neglected. This tendency has taken possession of building speculation, so that a new type of city and street has arisen, the cottage and villa arrangement. Although the streets in such villa quarters are to be approved for esthetic reasons, where so frequently laid out with alternating, contrasting, detached buildings, or those in solid blocks with gardens before them, interposed squares, etc., they have so far only shown defective results, chiefly because speculation has killed this mode of building by the unrestricted duplication of a *single* architectural type. Popular estimation has pronounced its justified and destructive judgment by designating such quarters as villa churchyards. Whether separate dwellings or apartment houses, a large number of similar buildings, placed beside each other, must destroy all effect and produce esthetic weariness, only to be removed by strong contrasts. Therefore, such villa quarters at least require to be intersected by streets needed for business traffic, executed in a very different architectural arrangement.

The important influence exerted on the appearance of streets by monuments was fully treated under Composition, except for fountains, the step-children of modern art. Squares and streets of modern dimensions imperatively demand prominent and strongly marked points. This cannot be done by monuments, since their necessary number and dimensions would far exceed their purpose and meaning. Recourse must be had to other objects for display, and monumental fountains come first in consideration. To refreshing and animating effects offered to the citizens is added, as an important artistic motive, the fact that they are very readily adapted in form and dimensions to the shape of the square. This is

then a standard motive, especially in our own city (Vienna), whose general use is not sufficiently considered.

The influence of modern bridges on the appearance of the street has almost vanished. Steel has supplanted stone, and the means at command tell the rest of the story in a way not to be misunderstood, so that bridges have almost entirely sunk to become structures of mere utility, mere elevated extensions of streets. The earliest brutal appearance of the new material led the citizens to protest energetically, and this has now at last resulted that even where only partially possible, the deck bridge is used to retain the always beautiful perspective unobstructed. It is likewise imperatively necessary for art and artists to contribute weighty suggestions for such undertakings, that the heretofore neglected view of the bridge lengthwise may receive a certain development, thereby in part affording the esthetically required view for the person approaching it. The artistic treatment of bridges must in most cases exhibit strongly emphasized bridge ends, with a richly designed railing for the bridge.

Our great advances in sanitation, the undisputed results of sanitary precautions, the vast and increasing population in great cities, and also the fact that cleanliness is inseparable from works of art,—all indicate the necessity for a scrupulously clean condition of our business streets, and a spotless appearance of public buildings and monuments. This requirement is more than justified, and the architect must even in his first sketch take corresponding precautions. It cannot be our object to mention everything pertaining to sanitation, but weight must be laid on this, that the architect must be perfectly acquainted with current information in this field, especially since modern requirements demand novel artistic forms.

Not belonging to sanitation, but allied thereto, is the problem of the disposal of gases of combustion and soot, continually becoming more prominent in our great cities. Sanitary regulations, such as compulsory use of coke, location of manufactories on the outskirts of the city, apparatus for consuming smoke, etc., evidently afford but slight relief, since these do not affect the vast number of heating apparatuses in our dwellings and public buildings. The appearance of the city is affected only in esthetic respects by manufactories and their great chimneys, while smaller smoke flues remain almost invisible. Even if more beautiful forms were perhaps devised for the former, yet, according to the present condition of science, no hope exists for the elimination of smoke and soot from our cities within any conceivable time. But smoke and soot are most injurious to modern art works. A mixture of dust, soot, and sediment quickly covers every work of art in the open air, giving it an entirely changed appearance, certainly not intended.

Attempts have not lacked for taking into consideration the innate sense of color in man by the aid of the sister arts. All such are thwarted by the esthetically and chemically injurious result of the evil just mentioned. Combined with this are also unfavorable climatic conditions, from which result blackened façades, with their sculptured ornamentation made unrecognizable by soot. The unpleasant color of bronze monuments, the lack of durability in all paintings on the exteriors of public buildings, the necessary boxing of all marble decorations

of squares and buildings during winter, etc., are the sad result of this evil. A remedy is only to be provided by the use of the simplest possible forms, of smooth surfaces, the use of porcelain and majolica, stoneware, mosaic pictures, etc., and modern architecture is able to show important results in this field.

Sufficient light, pleasant temperature, and pure air in rooms are very justifiable requirements by mankind. While these were esteemed unattainable a few decades since, a number of improvements and inventions have given us the possibility of their complete fulfilment. Thus the electric light makes possible the ideal lighting of rooms with avoidance of danger from fire.

Political and social conditions influence in a high degree architecture in cities, and these must even be taken as the primary causes of our so greatly changed type of buildings. Democracy has placed before the art a large number of new problems, but it must be stated that though art has gained by the power of the new impulse and by the possibilities created by modern construction, it has certainly lost the will of the sovereign, energy, and love of fame in individuals. Our colossal structures (exhibitions, railway stations, parliament houses, etc.) are eloquent witnesses, when compared with castles, palaces, etc.

Finally, we should consider the influence of economy upon art. It seems as if the influence of art first begins only where abundance and wealth exist. This is certainly wrong. Simplicity, indeed, best suits our present views, which in the appearance of the city at least require the artistic and the practical. Mere utility and overloaded tastelessness must therefore disappear. Even the simplest object may be treated artistically without increase in cost. More than ever in such cases there comes to the architect the earnest warning to demonstrate his artistic powers by exact and conscientious fulfilment of requirements by using the simplest and most appropriate forms. *Doubtless it can and must go so far, that nothing visible to the eye may be produced without receiving the consecration of art.* It should never be forgotten that the art of a country is not only the measure of the value of its wellbeing, but, above all, of its intelligence as well.

A general and inflexible adherence to such ground principles by architects would soon give an entirely different appearance to every city, and cause the disappearance of the offensive and overloaded ornamental chaos of suburban buildings. At every such opportunity the influence of the modern endeavors of mankind upon the future treatment of architectural works would be considered. But while there still frequently prevails in the external appearance of our buildings some uncertainty, a groping and seeking after the true generally appears in internal architecture, in the treatment of objects for use, an energetic and well-aimed application to industries, as well as very advanced powers, that take a fuller account of modern tendencies.

The word "comfort" has been naturalized in all languages, and everything would now be designated as mistaken that is opposed to its strict laws. Two conditions serve as criterions, and are prescribed by modern mankind: *The greatest possible convenience, and the utmost cleanliness.* All attempts to ignore these axioms produce

only worthless results, and all products of art not in accordance with these rules bear within themselves the germ of death. Examples are innumerable. Inconvenient stairways, everything ugly, unpractical, hard to clean, all inconvenient sanitary arrangements, furniture with sharp angles, seats unsuited to the form and not adapted for occasional use while reading, eating, or smoking, or for receptions, all unpractical works of art industry, even if the greatest minds are responsible for them, and many other things belong in this class. It is here immaterial whether these articles were intended for the palace, or for the simple dwelling of the citizen. If our modern creations of this kind, corresponding to the idea of comfort, be compared with the productions of even the most luxuriant French periods, the vast difference is very clear, and it must be confessed that good and entirely novel things may now be created, and have indeed been produced. The English first fulfilled these requirements, and they have for decades borne allegiance to this modern tendency; they have so far succeeded in the most recent times by a happy choice of forms taken directly from nature as to tolerably make amends for the lack of taste so long prevailing among them.

It was stated in the essay on the Architect that the modern architect has become the supporter of art handiwork. Strenuous endeavors made by the State to again unite art and industry have so far been without result worthy of mention. This is because art industry, art handiwork, and the ideas therewith connected are merely phrases, and that any elevation of this conception under present conditions is entirely inconceivable. Industry and handiwork naturally tend toward production by a manufactory, and money or wages alone attracts in this direction; but production in a manufactory is incompatible with art. This fact will also briefly and clearly show the defective, one might almost say the obsolete, point of view of our schools for art industries. It may, therefore, without further discussion, be maintained that everything really good and novel in industry and handiwork at this time is created by architects alone. In designing such works, the architect must have the technics of the material and of the workmanship before his eyes, and must know them thoroughly.

If we now turn aside from these endeavors in handiwork, an extensive knowledge of which the architect must possess for ordinary architectural works, and merely glance over the different tendencies, like stonework, textiles, ceramics, metal-work with its hundreds of processes, it will become clear that the architect must accumulate a treasure of knowledge if his creations are to be successful. There are vast numbers of things that modern civilization produces, for which modern art has already invented forms, and even given to many perfected shapes, that scarcely recall forms in past times, and are, indeed, entirely novel, since even their basis or structural principal has come from our original requirements and observation. A refreshing breeze passes over the sterile field of art, and luxuriant shoots put forth everywhere. Not everything that germinates and grows there ripens into fruit, or becomes an art form, but as the natural development of art requires, novelties do arise, and finally the dirty sewer of copying will be left behind, a circumstance fortunate for us. Art strides

forward slowly and seriously, produces creatively and constantly, until it attains the ideal of beauty that fully corresponds to the period. The noisy talk of mankind may again cause it to descend, but it will arise again and again if its new and inspiring impulse is supplied. Thus it was and so will it ever be. It is the sacred problem of the architect to accompany and not depart from it, even if the path be thorny, so that mankind may rejoice in the objects created by art through his means.

As these words suggest, earnest advice is given to those who are to become architects, to exercise themselves in observation, in perception, in the recognition of human needs, and to take the results of their observation as a basis of creation, but not to copy existing objects, unsuitable for modern men, or with slight changes to dish them up as novel and good. If architecture be not rooted in the life, in the needs of existing mankind, then will it lose the direct, animating, vivifying quality, and it will sink down to the depth of a wretched level, even ceasing to be an art.

The architect must always keep before his eyes, *that art is called to work for mankind, and that mankind is not here for the sake of art. Creative power must ever show itself anew in every work of art, and they are right who declare beautiful novel creations to be the supreme measure of value of art qualities.*

CONCLUSION.

This essay has extended far beyond the original intention, and yet it appears to me only to give expression to my convictions in the briefest form. Its contents can merely be the foundation; the method and means of producing other ashlar for the structure, how they are to be laid, and what forms they are to receive, — all these must be left to the pencil in the school. I have yet much to say, but illustrations would then be necessary. I would then avoid this, since my previous publications form in a certain sense illustrations of what is said. They clearly show how my expressed views have ripened. I believe that in this essay I have pointed out the path that must be followed in order to approximate to the proposed aim, — a modern architecture.

A direct question, "How should we build?" cannot indeed be answered. *But our feeling must indeed say to us to-day that the antique horizontal line, the arrangement of surfaces in broad areas, the greatest simplicity, and an energetic prominence of construction and material will thoroughly dominate future developed and novel art forms; this is demanded by modern technical science and by the means at our command. It is self-evident that the beautiful expression, which architecture will give to the needs of our time, must harmonize with the views and with the appearance of modern mankind, and it must show the individuality of the architect.*

There can now be no suggestion of smothering the ideal, or of lowering the level of art, and those convinced by this essay or strengthened in their convictions must admit that the great and new impulse for which mankind constantly longs, when rightly understood, will assuredly contribute more powerfully to clear up the now very erroneous views on art than all well-meant and obstinately defended theories on the use of the forms of past centuries, pure in style and well copied, but which no

longer have any connection whatever with modern mankind.

But architects who strive for the aims indicated in these essays are, then, *what the architects of all periods were, the children of their era; their works will bear their own stamp, they will themselves solve their problems by contributing to development, and they will truly create; their language will be intelligible to mankind, the world will behold its own reflection in their works, and self-consciousness, individuality, and convictions that belonged to the artists of all periods will fill their hearts.*

The errors of our ancestors in permitting impiously the works of their own ancestors to be neglected or destroyed will be avoided by us, and we shall place in a suitable setting like jewels, works transmitted to us; so that they may be preserved for us as modeled illustrations of the history of the art. The vast progress of civilization will plainly show us what should be learned from the ancients, and what should be omitted, and the indicated true path will certainly guide us to the aim of creating the novel and the beautiful.

May what has been said in these essays fall on fertile soil for the welfare of art and artists; may the thoughts expressed contribute to arouse a freshly pulsating life, a rich development of architecture with a definite aim, so that in a not too distant period we may see embodied our ideal of beauty, the predicted and hoped for!

THE END.

STEEL construction is the most characteristic architectural development of the nineteenth century. It came as an inspiration to a few of our best architects, and its possibilities, extreme adaptability, and scientific accuracy at once commended itself to every constructor. It has undoubtedly influenced our national architecture far more than we can now appreciate, and its effects will continue for many years to come. But, like all good things which come in this world, it has its inconvenient side. All of our architecture is fortunately not limited to fifteen and twenty-story office buildings. In fact, our best architectural successes have been in buildings of a very moderate height, and worth in design is by no means measured by either expanse or altitude. The steel cage construction is so new, and gives the architects such boundless control over the material forces of the building, that we have undoubtedly at times put too high a value upon it, and, in a way, it has tintured our whole idea of construction. When it is no longer necessary to carry piers on anything more substantial than an I beam, and when the external effect of the building is obtained by the use of a thin veneer of architecture over a minimized web of steel, and while the whole problem is, in reality, still in its infancy, we must expect, and we do find, more failures than successes from an esthetic standpoint. The very fact that the problem is so interesting can easily blind us as to what is its essential nature. We do not mean by this that the steel skeleton is to be deprecated, but rather that in our designing we should not forget that the principles of constructive design are older than I beams, and that artistic composition, balance, and unity are not factors of Z-bar columns or built girders. The fact that terra-cotta and brick lend themselves so thoroughly to steel construction should not make us forget the limitations of either material.

Selected Miscellany.

NOTES FROM ST. LOUIS.

The universal topic at present is the coming World's Fair, and now that the site has been determined upon and the Commission of Architects selected, the work will soon be under way.

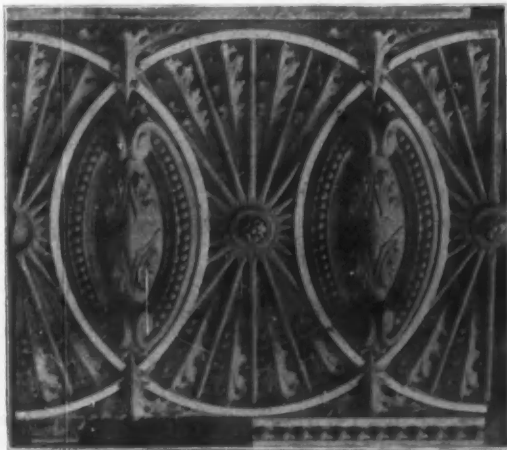
The selection of the site has been very fortunate, the municipal assembly having granted the privilege of



DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
Perth Amboy Terra-Cotta Company, makers.

using the western or undeveloped part of Forest Park, and the available land contiguous to the park will fix no limit upon the space that may be used.

The plan pursued in selecting the architects has followed closely that which prevailed at Chicago, a commission of ten architects having been chosen, five from St. Louis, and five from the country at large. Mr. Isaac S. Taylor has been chosen the chairman of the com-



DETAIL FOR A VEHICLE MANUFACTURING BUILDING.
Winkle Terra-Cotta Company, makers.

mission and the director of the works. The other St. Louis members are: Eames and Young, T. C. Link, Barnett, Haynes and Barnett, Widman, Walsh and Boissellier; and the members from a distance are Cass Gilbert and Carrere and Hastings of New York, Van Brunt and Howe of Kansas City, Walker and Kimball of Boston, and D. H. Burnham & Co. of Chicago.

A desire is manifest to have some of the improve-

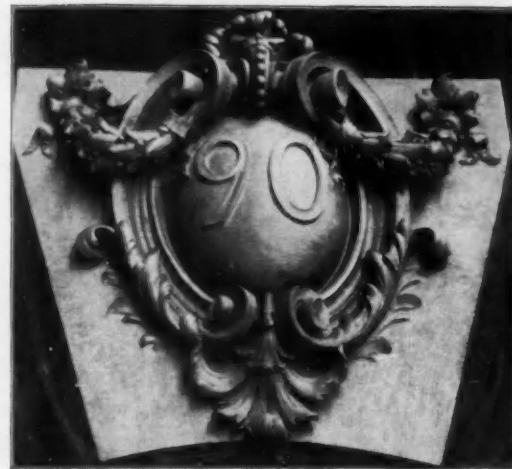
ments of such a nature as to remain permanent as well as that some of the buildings shall remain a permanent



DETAIL FOR NEW THEATRE, BOSTON.
J. M. Wood & J. G. Howard, Associated Architects.
Atlantic Terra-Cotta Company, makers.

and enduring monument of the occasion commemorating the hundredth anniversary of the "Louisiana Purchase."

The building permits since the first of the year show a total value of buildings of six and one-half million dollars for that period, being a gain of 121 per cent. over



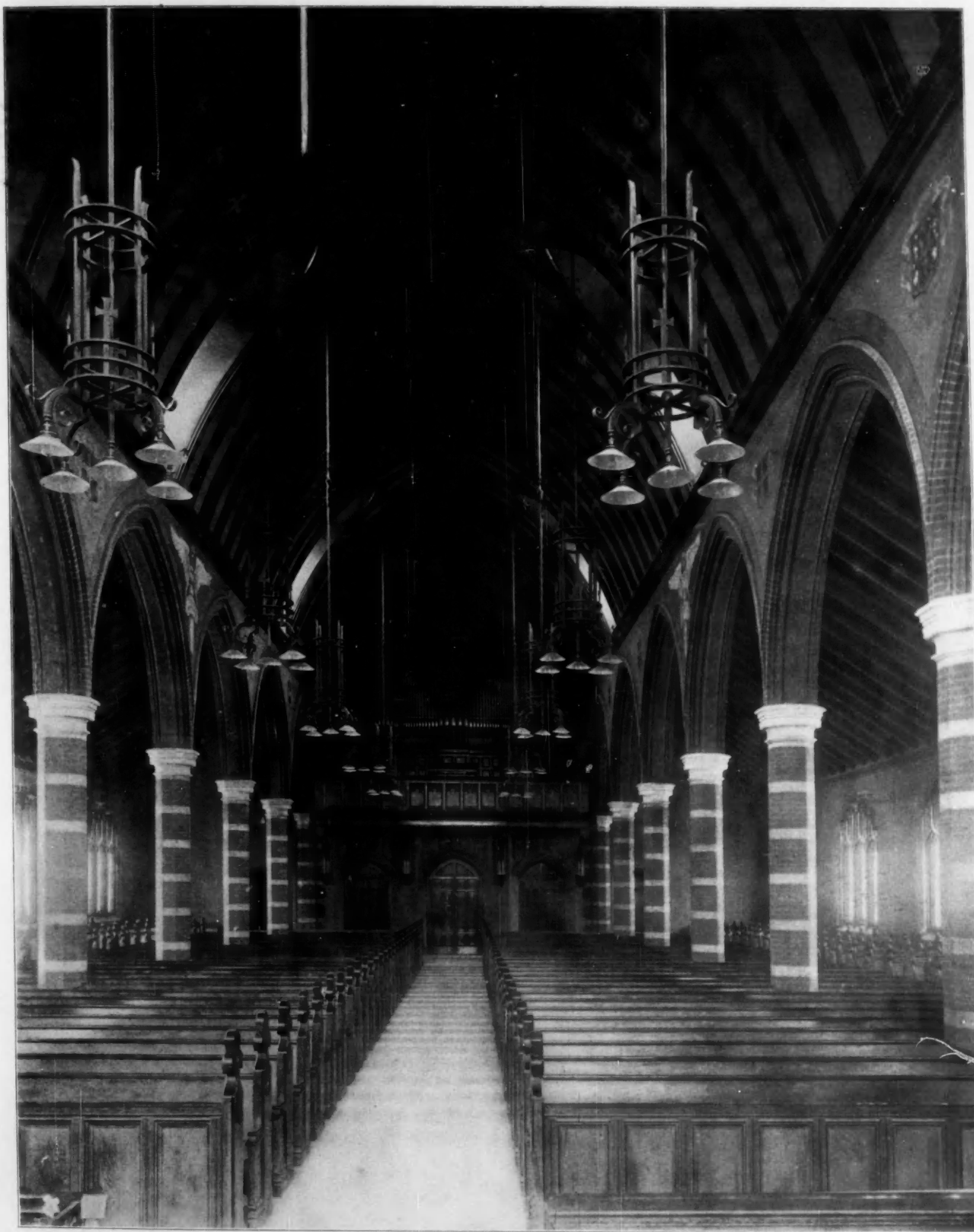
DETAIL BY J. E. R. CARPENTER, ARCHITECT.
Standard Terra-Cotta Works, makers.

that for the same period last year, and for May and June the gain was 272 per cent. over a similar period for 1900.

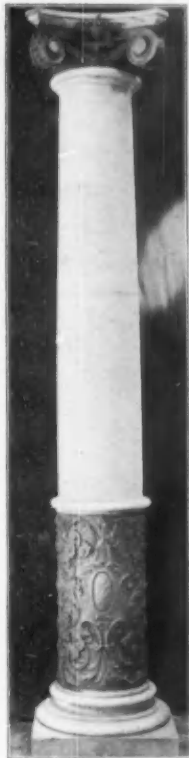
In designing the new Ralph Waldo Emerson School, Commissioner of Schools Wm. B. Ittner has followed the lines of English schools in plan as well as in exterior treatment. The building will contain 18 rooms besides the kindergarten department, and will be 200 ft. long,



DETAIL BY HARDE & SHORT, ARCHITECTS.
Excelsior Terra-Cotta Company, makers.



ST. LEO'S CHURCH, LEOMINSTER, MASS.
Maginnis, Walsh & Sullivan, Architects.



COLUMN BY E. L. ENGEL, ARCHITECT.
B. Kreischer & Sons, makers.

catholics are building a church on Grand Avenue at a cost of \$50,000, and St. Mark's congregation are building a church and parochial residence on Page and Academy Avenues, to cost the same amount. The former is a classical design by C. S. Holloway, and the latter is Gothic by G. W. Helmuth.

IN GENERAL.

Edward P. Casey, architect, has removed from 171 Broadway to 1 Nassau Street, New York City.

Walter H. Kilham and James C. Hopkins, Boston, have formed a copartnership under the firm name of Kilham & Hopkins; office at 9 Park Street.

The School of Architecture of the University of Pennsylvania, like the Architectural School at Harvard, is soon to have a building of its own.

One of the largest office buildings in Philadelphia will soon be erected on the northwest corner of 12th and

but only two stories and basement high. It will cost \$125,000.

A number of large churches are being built, a permit having been issued for St. John's M. E. Church at the corner of Kingshighway and Washington Avenue. Barnett, Haynes and Barnett have prepared drawings for the new Roman Catholic cathedral, to be built on the northwest corner of Lindell Boulevard and Newstead Avenue. The building will be of marble, in the Renaissance style. The Italian

Chestnut Streets. James Windrim has been appointed architect.

Guy Lowell, of Boston, has prepared plans for a palatial country house, to cost \$300,000, at Jenkintown, Pa.; and an equally large if not so costly a suburban residence has been started at Bryn Mawr, Kennedy & Kelsey, architects.

SUNDRY ITEMS.

St. Augustines Church, Pittsburgh, Pa., Rutan & Russell architects, illustrated in the plate forms of this number, was built of "Ironclay" brick, made by the Columbus Face Brick Company.

The architectural terra-cotta used in St. Peter's Church, Harding & Gooch, architects (illustrated in the plate form of this number) was made by the Excelsior Terra-Cotta Company.

B. Kreischer & Sons, New York City, manufacturers of architectural terra-cotta and brick, report the following new contracts: Residence, Washington, D. C.; McKim, Mead & White,



ADVANCE THRESHER COMPANY BUILDING, MINNEAPOLIS, MINN.
Kees & Coburn, Architects.
Built of "Ironclay" brick, made by the Columbus Face Brick Company.

architects; white brick. Press Club, 9-11 and 13 Spruce Street, New York City, A. W. Brunner, architect; buff-gray brick. Residence, Tuxedo Park, New York, Clinton & Russell, architects; gray terra-cotta. American Express Building, Madison Ave., New York City, Samuel Huckel, architect; dark gray speckled brick.



DETAIL BY GEORGE KEISTER, ARCHITECT.
New Jersey Terra-Cotta Company, makers.

Celadon Roofing Tile (Charles Bacon, Boston agent) will be used on the new addition to the Hotel Somerset, Boston, A. H. Bowditch, architect.

Charles Bacon, Boston agent for Sayre & Fisher



DETAIL BY JOSEPH EVANS SPERRY, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, makers.

Company, reports the following new contracts for furnishing brick: Clinker brick for stable, Brookline, Mass., Coolidge & Carlson, architects; house, Brookline, Mass., W. G. Preston, architect; Massachusetts General Hospital, new building, Wheelwright & Haven, architects; South Terminal Trust Company Building, Boston, Winslow & Bigelow, architects; Walker Building, Boston, Winslow & Bigelow, architects; Sears House, Weston, Mass., J. E. Chandler, architect; block of houses, Bay State Road, Boston, L. M. Merrill, owner. Total of nearly a million brick.

Adjoining the Canadian Government Exhibit, at the Pan-American Exposition, Buffalo, 1901, Messrs. Henry Maurer & Son, of 420 East 23d Street, New York City, have erected a structure, a view of which we reproduce, to exemplify the various uses to which clay is adaptable.

They have here erected a flat arch of the "Herculean" method of fire-proof construction, spanning 25 ft. in the clear, from wall to wall, without the use of iron beams or girders; all the metal necessary being Tee irons $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. by $\frac{3}{8}$ in., which are thoroughly imbedded in Portland cement to render the metal rust-proof, and again en-

cased in terra-cotta grooves, being everywhere covered by such fire-proof material never less than 2 ins. in thickness; presenting the acme of fire-proof construction.

The strength and rigidity of such an arch is phe-



SCHOOLHOUSE AT ST. BERNARD, OHIO.
Werner & Adkins, Architects.
Roofed with "American S" tile.

nomenal; one of 18 ft. span having been tested to meet the requirements of the Philadelphia Building Department, to cover buildings of any and every class, at 600 pounds to the square foot, showing, during a prolonged test of several days, no perceptible deflection whatever.

Another arch of 13 ft. span, 8 ins. deep, was erected at the New York Glucose Company's Factory, now building at Shady Side, N. J., and stood without any visible structural strain a load far exceeding even that.

This construction presents many radical features of interest to architects and engineers.

They also show terra-cotta partitions of different thicknesses, the so-called "Phoenix" 2-in. partition being especially worthy of examination; column covering,



ASTOR APARTMENT HOUSE, NEW YORK CITY.

Clinton & Russell, Architects.

Terra-cotta furnished by the New York Architectural Terra-Cotta Company; front brick furnished by the Hydraulic-Press Brick Company, Fredenburg & Lounsbury, New York Agents.

gas retorts, front brick of different colorings; red clay roofing tiles which, if more extensively utilized for ware-

entire exhibit is an instructive lesson to all interested in fire-proof building.



DETAIL BY FISHER & LAWRIE, ARCHITECTS.
Northwestern Terra-Cotta Company, makers.

houses, depots, sheds, etc., would materially reduce the fire losses so frequent when shingles are used; in fact, the



THE FIRE-PROOF BUILDING, ERECTED AT THE PAN-AMERICAN EXPOSITION BY HENRY MAURER & SON.

NEW BOOK.

SCHOOL ARCHITECTURE. By Edmund M. Wheelwright, Boston. Rogers & Manson. Size, 7½ by 10½ ins. 350 pp. 250 illus. Price, \$5, delivered.

In 1898-1900 there appeared in *THE BRICKBUILDER* a series of papers on "The American Schoolhouse," by Edmund M. Wheelwright. The success of these papers suggested the publication of this book, in which the original material has been recast and the scope of the subject has been greatly widened.

Many American schools not considered in the original papers are illustrated and described, but the work is especially enriched from foreign sources. Examples are presented of the most typical and practically suggestive schools of Germany, Austria, Switzerland, the Scandinavian countries, England, and France, the subject being more comprehensively treated than in any book heretofore published. All details of school construction are considered, yet the information is studiously condensed within the limits of a convenient handbook, which is made readily accessible by an unusually full index.

It is hardly necessary to refer to Mr. Wheelwright's wide experience in the designing and construction of schools, or to his general recognition as an authority on school architecture.



DETAIL BY A. VAN BRUNT, ARCHITECT.
St. Louis Terra-Cotta Company, makers.

"School Architecture."

A General Treatise on Designing and Planning of Schoolhouses.

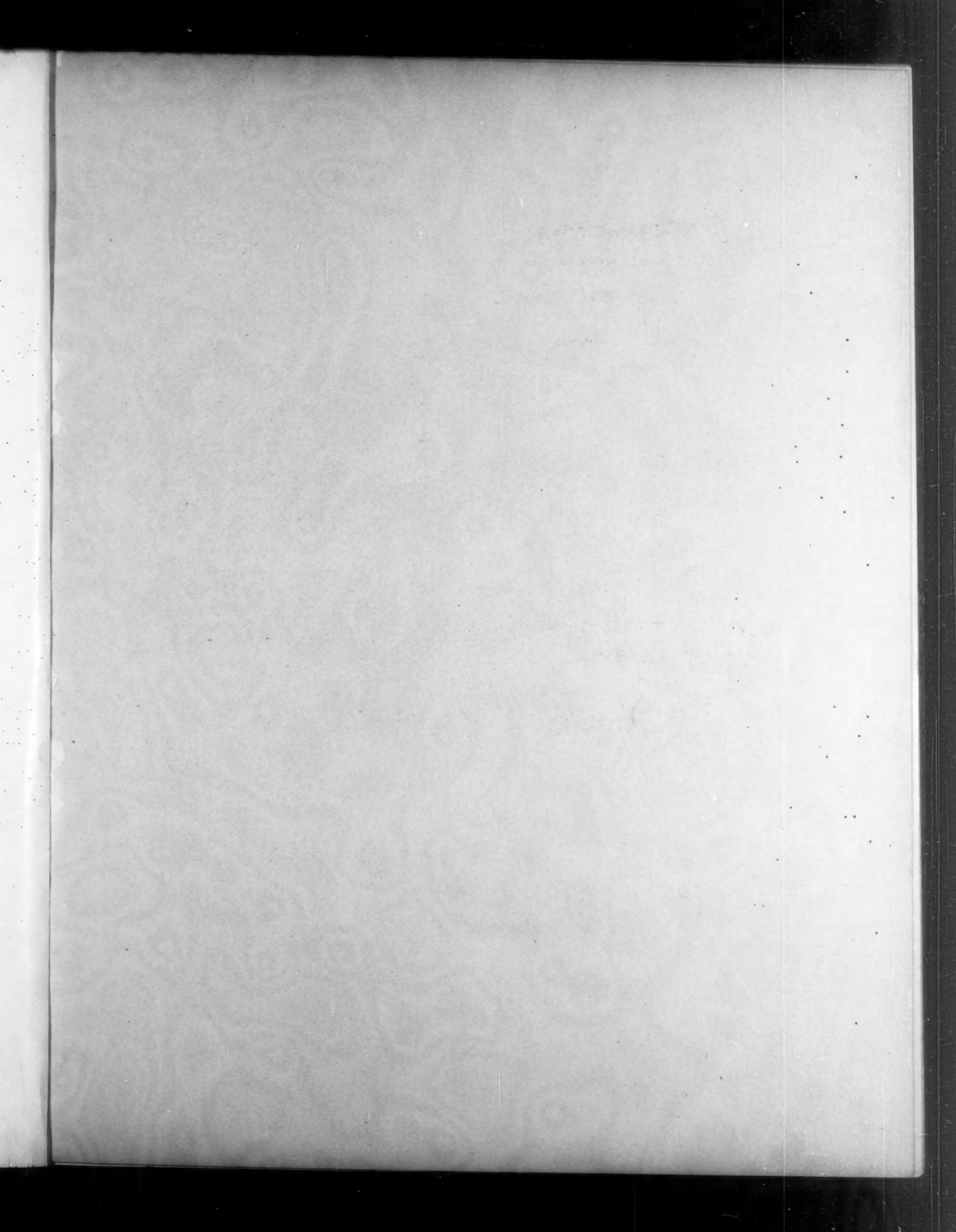
BY EDMUND M. WHEELWRIGHT.

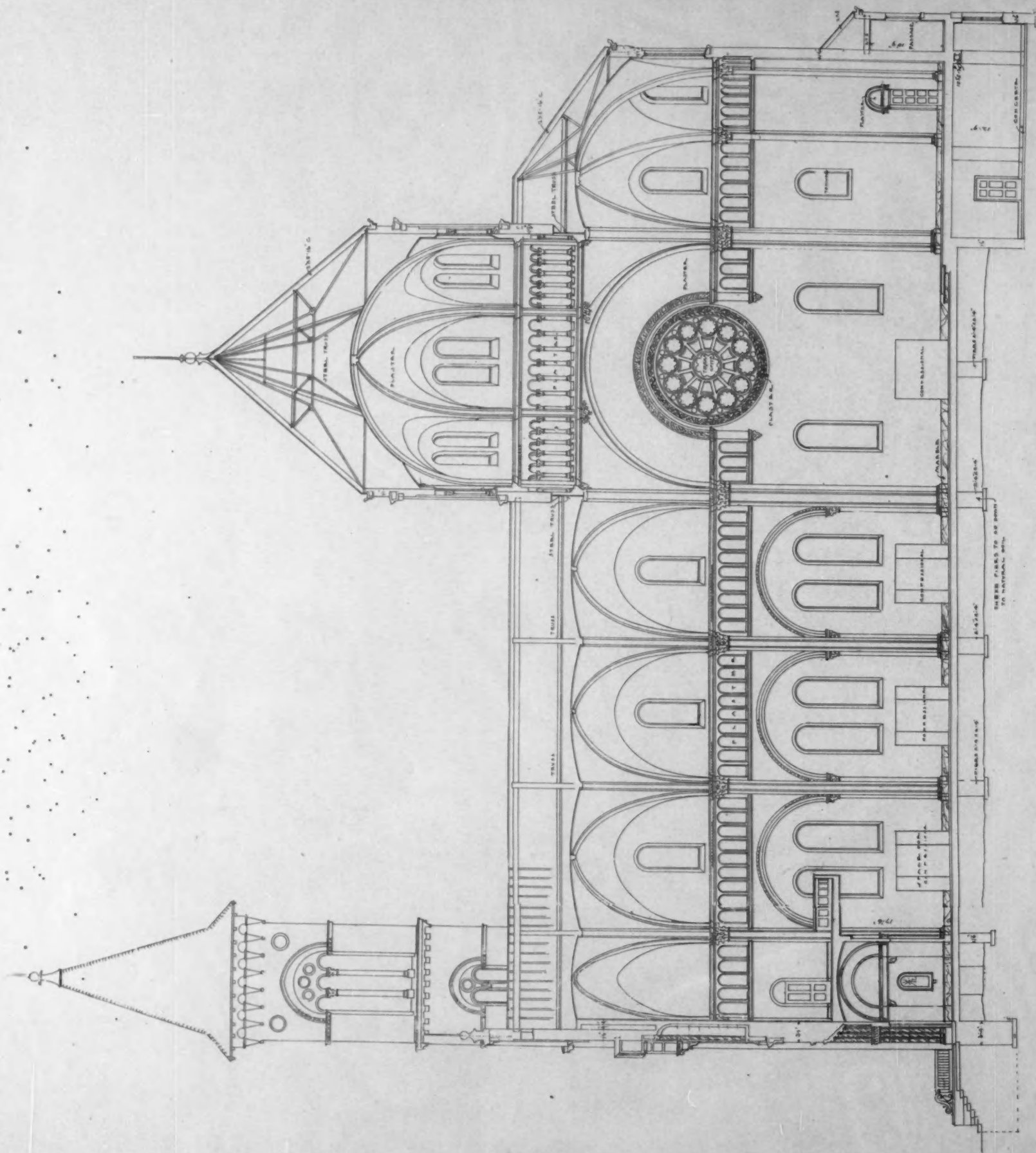
More than 250 Illustrations of Schoolhouses and Plans; many of the best types of all grades having been chosen.

An indispensable Text-book for Schoolhouse Designers.

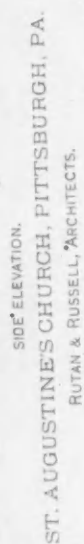
Price, \$5.00, delivered.

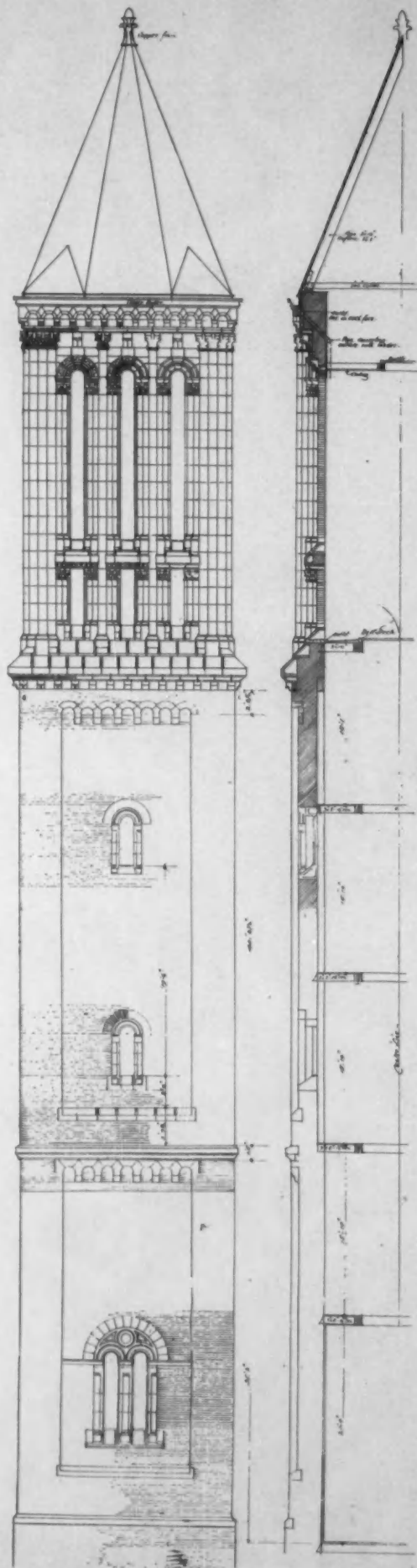
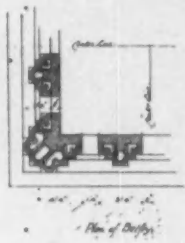
ROGERS & MANSON, *Publishers*,
Boston, Mass.



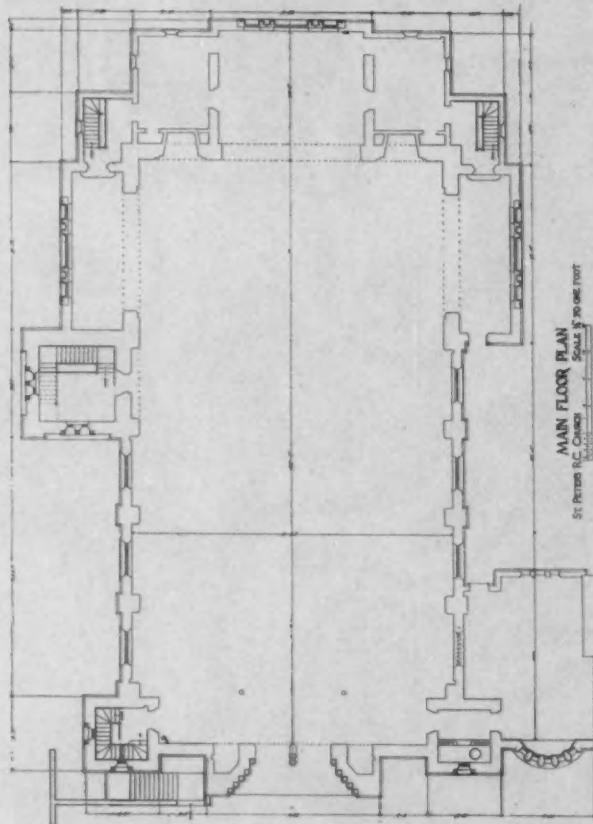


LONGITUDINAL SECTION.

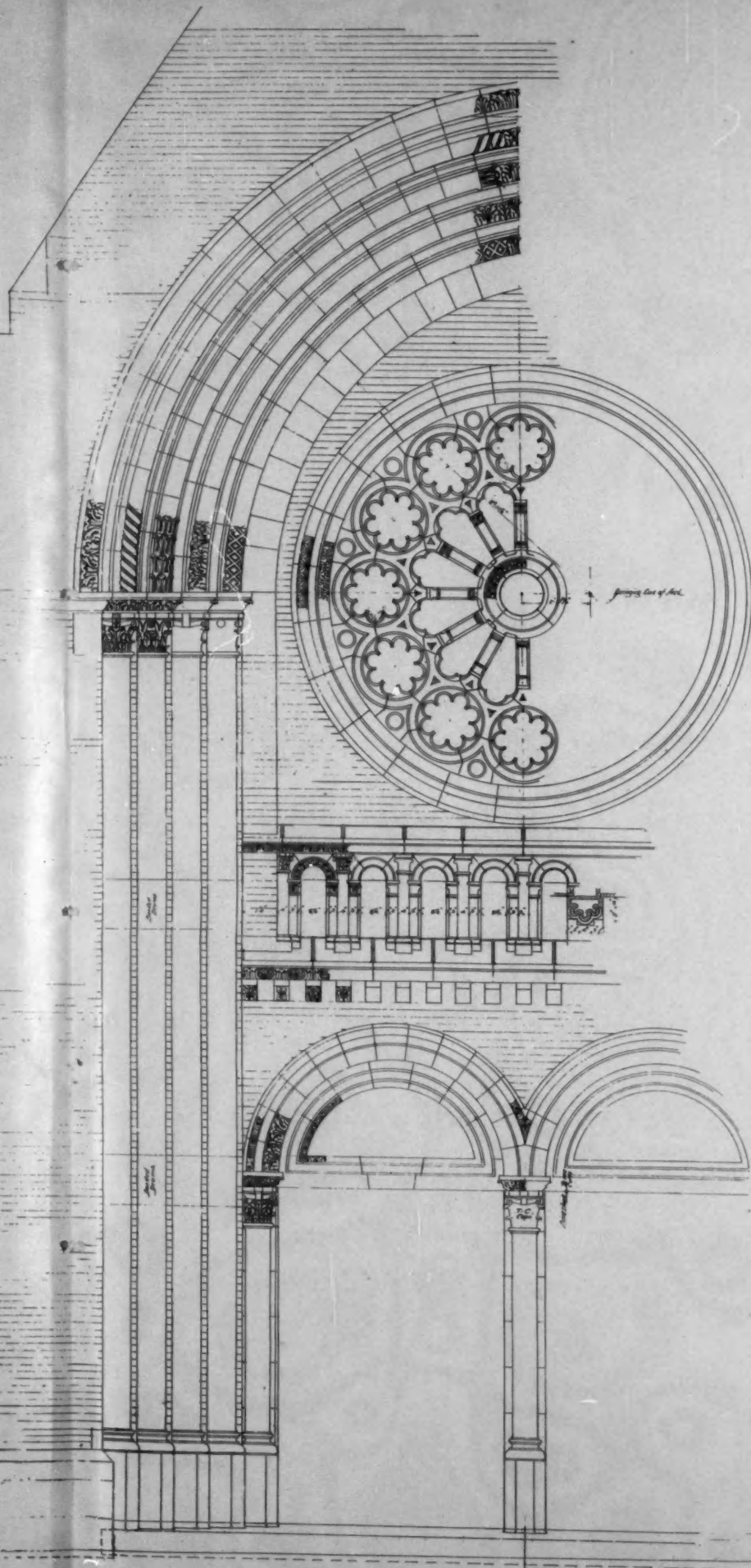




ELEVATION OF MAIN TOWER.



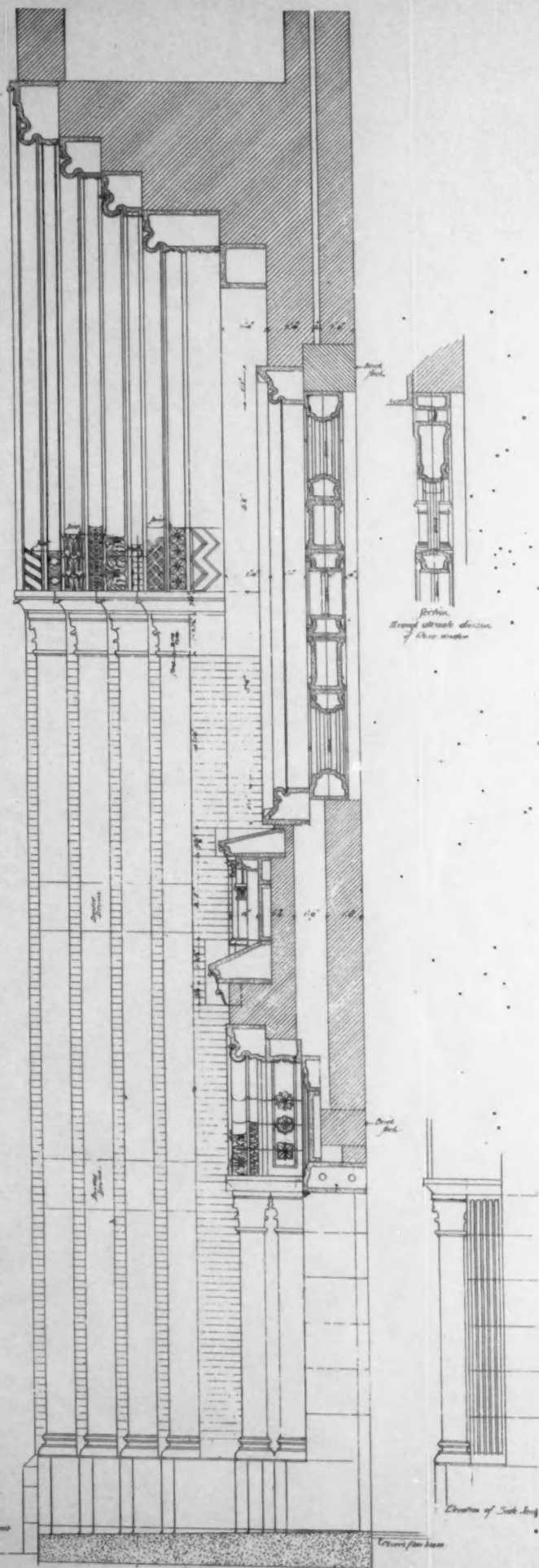
MAIN FLOOR PLAN
St. Peter's P.C. Church
Scale 1/4" = 1' 0"



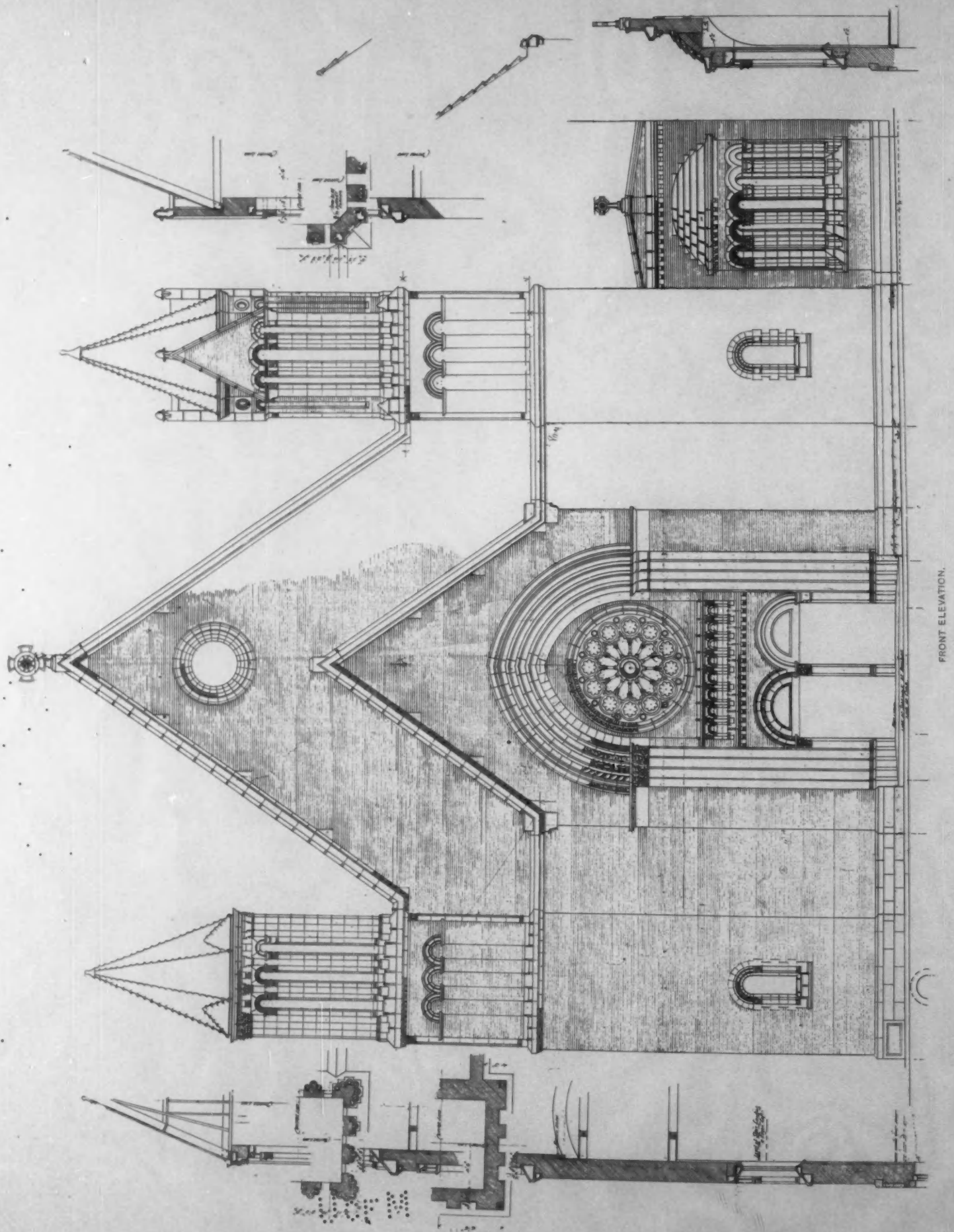
DETAIL OF ELEVATION.

NEW BRIGHTON, STATEN ISLAND, N. Y.

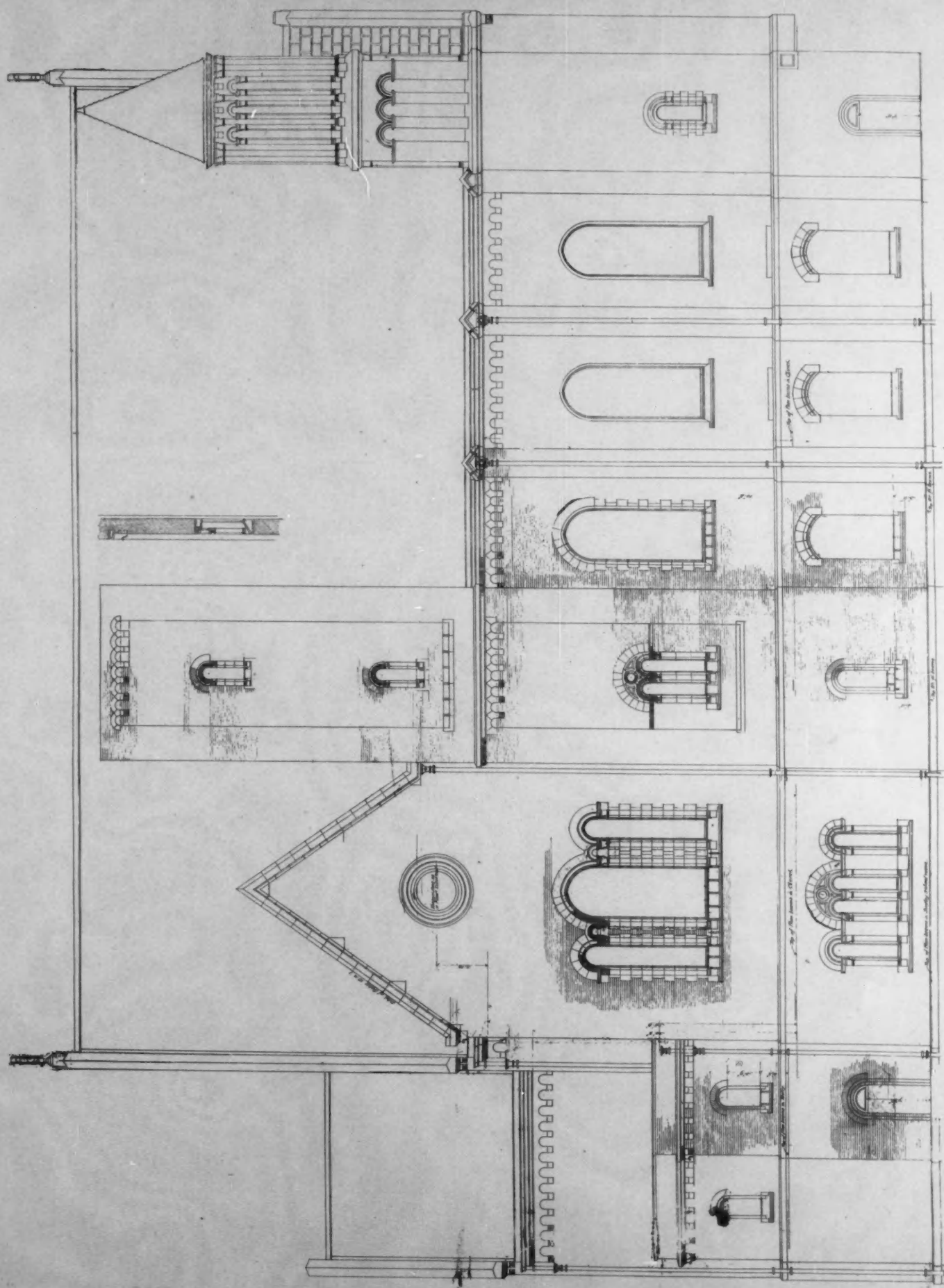
EDWARD HARDING & GOOCH, ARCHITECTS.



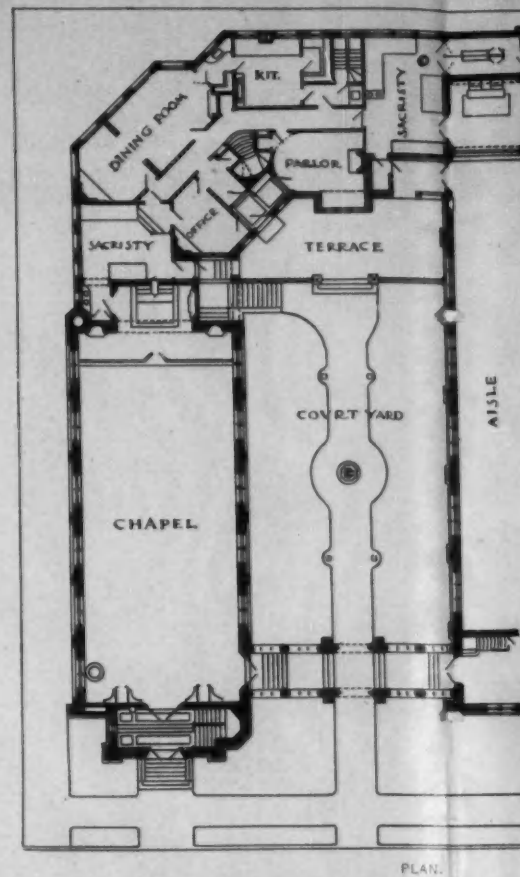
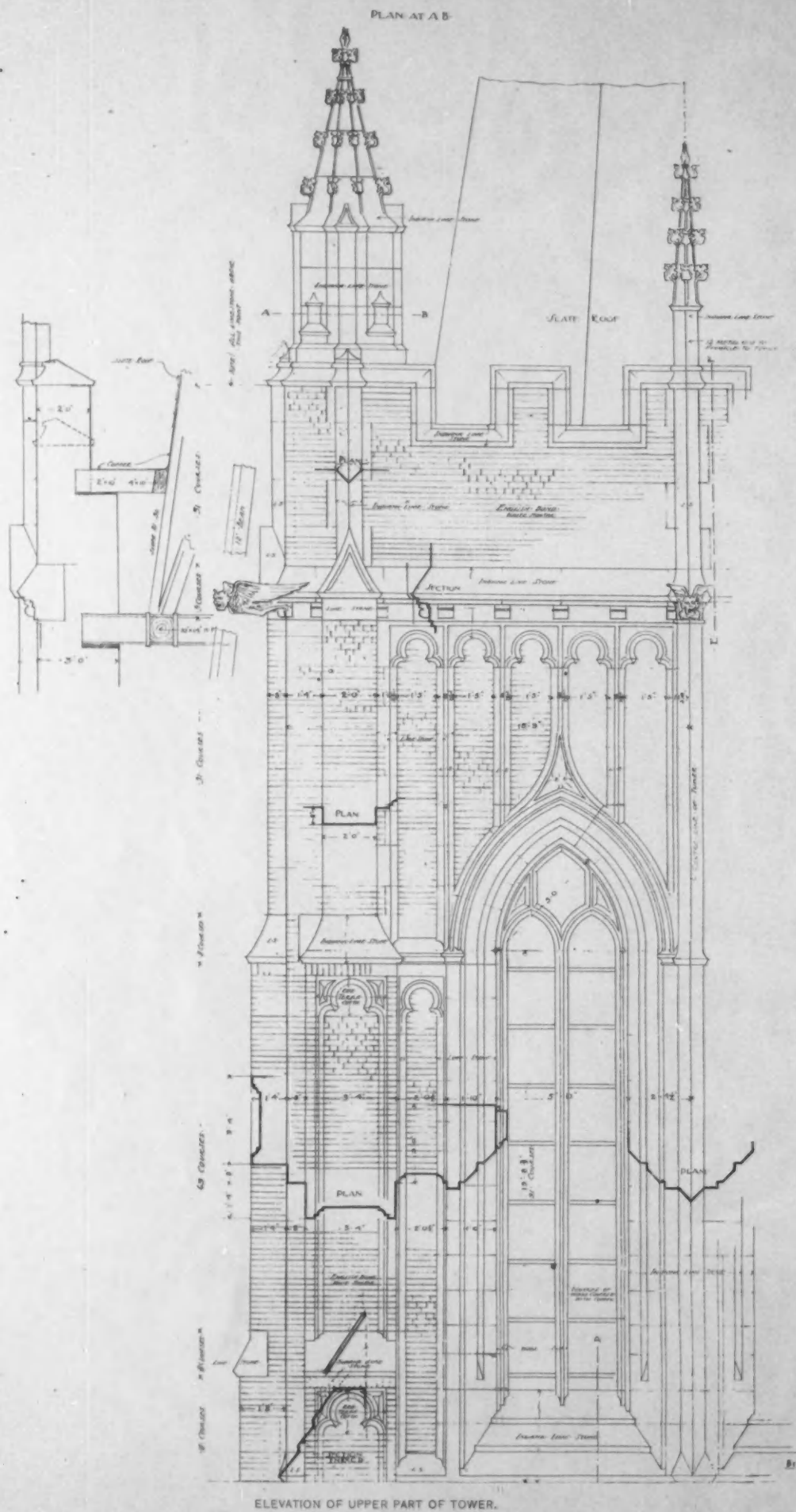
SECTION THROUGH CENTER OF ONE OF THE ENTRANCES AND THROUGH CENTER OF ROSE WINDOW.

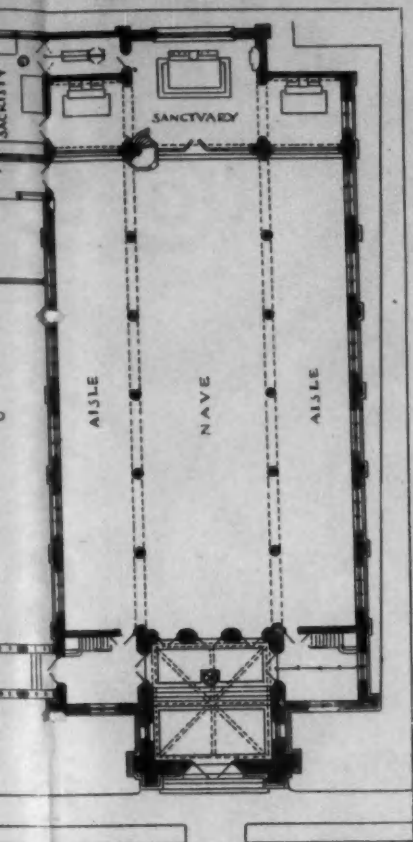


FRONT ELEVATION.

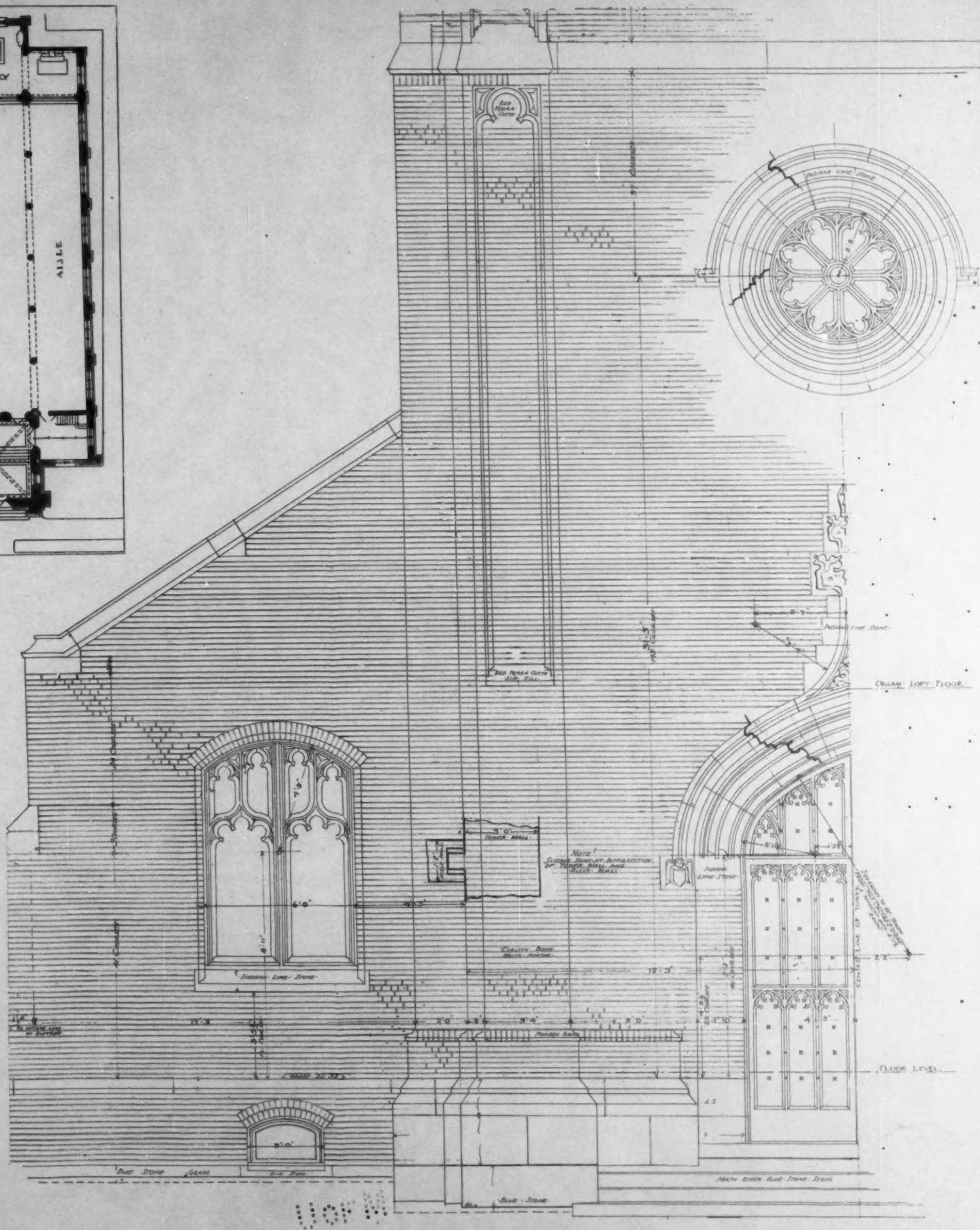


WEST ELEVATION.
MAIN TOWER.
ST. PETER'S CHURCH, NEW BRIGHTON, STATEN ISLAND, N. Y.
GEORGE EDWARD HARDING & GOOCH, ARCHITECTS.





PLAN.



ELEVATION OF LOWER PART OF TOWER.



